BLM LIBRARY
88066947

BLM

# Desert Harvest Solar Project

## Draft Environmental Impact Statement
## and
## Draft California Desert Conservation Area Plan Amendment

## Volume 2: Section 4.5 – Appendix A

CACA-49491
DOI Control #: DES 12-17
Publication Index #: BLM/CA/ES-2012-006+1793
DOI-BLM-CA-D000-2012-0004-EIS

April 2012

United States
Department of the Interior
Bureau of Land Management
Palm Springs Field Office
Palm Springs, CA

#793423517

ID88066947

HD
243
.C2
D47
2012
V.2

# Table of Contents

# CONTENTS OF VOLUME 2

4.5 Climate Change ..... 4.5-1
  4.5.1 Methodology for Analysis ..... 4.5-1
  4.5.2 Applicant Measures ..... 4.5-1
  4.5.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.5-1
  4.5.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.5-1
  4.5.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.5-1
  4.5.6 Alternative 4 – Proposed Solar Project ..... 4.5-2
  4.5.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.5-4
  4.5.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.5-6
  4.5.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.5-7
  4.5.10 Alternative A – No Gen-Tie ..... 4.5-9
  4.5.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.5-9
  4.5.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.5-11
  4.5.13 Alternative D – Cross-Valley Alignment ..... 4.5-12
  4.5.14 Alternative E – New Cross-Valley Alignment ..... 4.5-14
  4.5.15 Cumulative Effects ..... 4.5-15
  4.5.16 CEQA Considerations ..... 4.5-16
4.6 Cultural Resources ..... 4.6-1
  4.6.1 Methodology for Analysis ..... 4.6-1
  4.6.2 Applicant Measures ..... 4.6-3
  4.6.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.6-4
  4.6.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.6-4
  4.6.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.6-4
  4.6.6 Alternative 4 – Proposed Solar Project ..... 4.6-4
  4.6.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.6-10
  4.6.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.6-11
  4.6.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.6-12
  4.6.10 Alternative A – No Gen-Tie ..... 4.6-13
  4.6.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.6-13
  4.6.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.6-16
  4.6.13 Alternative D – Cross-Valley Alignment ..... 4.6-16
  4.6.14 Alternative E – New Cross-Valley Alignment ..... 4.6-19
  4.6.15 Cumulative Effects ..... 4.6-21
  4.6.16 CEQA Considerations ..... 4.6-27
4.7 Paleontology ..... 4.7-1
  4.7.1 Methodology for Analysis ..... 4.7-1
  4.7.2 Applicant Measures ..... 4.7-1
  4.7.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.7-2
  4.7.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) .....

4.7.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.7-2
4.7.6 Alternative 4 – Proposed Solar Project 4.7-2
4.7.7 Alternative 5 – Solar Project Excluding WHMA 4.7-9
4.7.8 Alternative 6 – Reduced Footprint Solar Project 4.7-10
4.7.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.7-11
4.7.10 Alternative A – No Gen-Tie 4.7-12
4.7.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.7-12
4.7.12 Alternative C – Separate Transmission Towers within Same ROW 4.7-14
4.7.13 Alternative D – Cross-Valley Alignment 4.7-15
4.7.14 Alternative E – New Cross-Valley Alignment 4.7-16
4.7.15 Cumulative Effects 4.7-18
4.7.16 CEQA Considerations 4.7-19
4.8 Fire and Fuels Management 4.8-1
4.8.1 Methodology for Analysis 4.8-1
4.8.2 Applicant Measures 4.8-1
4.8.3 Alternative 1 – No Action (No Plan Amendment) 4.8-1
4.8.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.8-2
4.8.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.8-2
4.8.6 Alternative 4 – Proposed Solar Project 4.8-2
4.8.7 Alternative 5 – Solar Project Excluding WHMA 4.8-5
4.8.8 Alternative 6 – Reduced Footprint Solar Project 4.8-6
4.8.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.8-7
4.8.10 Alternative A – No Gen-Tie 4.8-8
4.8.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.8-9
4.8.12 Alternative C – Separate Transmission Towers within Same ROW 4.8-10
4.8.13 Alternative D – Cross-Valley Alignment 4.8-11
4.8.14 Alternative E – New Cross-Valley Alignment 4.8-12
4.8.15 Cumulative Effects 4.8-13
4.8.16 CEQA Considerations 4.8-15
4.9 Soils and Geology 4.9-1
4.9.1 Methodology for Analysis 4.9-1
4.9.2 Applicant Measures 4.9-1
4.9.3 Alternative 1 – No Action (No Plan Amendment) 4.9-2
4.9.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.9-2
4.9.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.9-2
4.9.6 Alternative 4 – Proposed Solar Project 4.9-3
4.9.7 Alternative 5 – Solar Project Excluding WHMA 4.9-5
4.9.8 Alternative 6 – Reduced Footprint Solar Project 4.9-6
4.9.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.9-6
4.9.10 Alternative A – No Gen-Tie 4.9-7

4.9.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.9-7
4.9.12 Alternative C – Separate Transmission Towers within Same ROW 4.9-9
4.9.13 Alternative D – Cross-Valley Alignment 4.9-9
4.9.14 Alternative E – New Cross-Valley Alignment 4.9-10
4.9.15 Cumulative Effects 4.9-11
4.9.16 CEQA Considerations 4.9-13
4.10 Energy and Mineral Resources 4.10-1
4.10.1 Methodology for Analysis 4.10-1
4.10.2 Applicant Measures 4.10-1
4.10.3 Alternative 1 – No Action (No Plan Amendment) 4.10-1
4.10.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.10-2
4.10.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.10-2
4.10.6 Alternative 4 – Proposed Solar Project 4.10-2
4.10.7 Alternative 5 – Solar Project Excluding WHMA 4.10-4
4.10.8 Alternative 6 – Reduced Footprint Solar Project 4.10-5
4.10.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.10-6
4.10.10 Alternative A – No Gen-Tie 4.10-6
4.10.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.10-7
4.10.12 Alternative C – Separate Transmission Towers within Same ROW 4.10-8
4.10.13 Alternative D – Cross-Valley Alignment 4.10-9
4.10.14 Alternative E – New Cross-Valley Alignment 4.10-9
4.10.15 Cumulative Effects 4.10-10
4.10.16 CEQA Considerations 4.10-12
4.11 Lands and Realty 4.11-1
4.11.1 Methodology for Analysis 4.11-1
4.11.2 Applicant Measures 4.11-1
4.11.3 Alternative 1 – No Action (No Plan Amendment) 4.11-1
4.11.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.11-2
4.11.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.11-2
4.11.6 Alternative 4 – Proposed Solar Project 4.11-2
4.11.7 Alternative 5 – Solar Project Excluding WHMA 4.11-5
4.11.8 Alternative 6 – Reduced Footprint Solar Project 4.11-6
4.11.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.11-6
4.11.10 Alternative A – No Gen-Tie 4.11-7
4.11.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.11-7
4.11.12 Alternative C – Separate Transmission Towers within Same ROW 4.11-10
4.11.13 Alternative D – Cross-Valley Alignment 4.11-11
4.11.14 Alternative E – New Cross-Valley Alignment 4.11-14
4.11.15 Cumulative Effects 4.11-17
4.11.16 CEQA Considerations 4.11-19
4.12 Noise and Vibration 4.12-1

4.12.1 Methodology for Analysis ..... 4.12-1
4.12.2 Applicant Measures ..... 4.12-2
4.12.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.12-2
4.12.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.12-3
4.12.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.12-3
4.12.6 Alternative 4 – Proposed Solar Project ..... 4.12-3
4.12.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.12-14
4.12.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.12-16
4.12.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.12-18
4.12.10 Alternative A – No Gen-Tie ..... 4.12-20
4.12.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.12-20
4.12.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.12-25
4.12.13 Alternative D – Cross-Valley Alignment ..... 4.12-26
4.12.14 Alternative E – New Cross-Valley Alignment ..... 4.12-28
4.12.15 Cumulative Effects ..... 4.12-30
4.12.16 CEQA Considerations ..... 4.12-34
4.13 Public Health and Safety ..... 4.13-1
4.13.1 Methodology for Analysis ..... 4.13-1
4.13.2 Applicant Measures ..... 4.13-1
4.13.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.13-3
4.13.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.13-3
4.13.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.13-3
4.13.6 Alternative 4 – Proposed Solar Project ..... 4.13-3
4.13.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.13-13
4.13.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.13-14
4.13.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.13-15
4.13.10 Alternative A – No Gen-Tie ..... 4.13-16
4.13.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.13-16
4.13.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.13-17
4.13.13 Alternative D – Cross-Valley Alignment ..... 4.13-17
4.13.14 Alternative E – New Cross-Valley Alignment ..... 4.13-18
4.13.15 Cumulative Effects ..... 4.13-19
4.13.16 CEQA Considerations ..... 4.13-20
4.14 Recreation ..... 4.14-1
4.14.1 Methodology for Analysis ..... 4.14-1
4.14.2 Applicant Measures ..... 4.14-1
4.14.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.14-1
4.14.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.14-1
4.14.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.14-1

4.14.6 Alternative 4 – Proposed Solar Project 4.14-1
4.14.7 Alternative 5 – Solar Project Excluding WHMA 4.14-3
4.14.8 Alternative 6 – Reduced Footprint Solar Project 4.14-4
4.14.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.14-4
4.14.10 Alternative A – No Gen-Tie 4.14-5
4.14.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.14-5
4.14.12 Alternative C – Separate Transmission Towers within Same ROW 4.14-7
4.14.13 Alternative D – Cross-Valley Alignment 4.14-7
4.14.14 Alternative E – New Cross-Valley Alignment 4.14-9
4.14.15 Cumulative Effects 4.14-10
4.14.16 CEQA Considerations 4.14-12
4.15 Social and Economic 4.15-1
4.15.1 Methodology for Analysis 4.15-1
4.15.2 Applicant Measures 4.15-1
4.15.3 Alternative 1 – No Action (No Plan Amendment) 4.15-1
4.15.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.15-1
4.15.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.15-1
4.15.6 Alternative 4 – Proposed Solar Project 4.15-2
4.15.7 Alternative 5 – Solar Project Excluding WHMA 4.15-5
4.15.8 Alternative 6 – Reduced Footprint Solar Project 4.15-6
4.15.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.15-6
4.15.10 Alternative A – No Gen-Tie 4.15-7
4.15.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.15-7
4.15.12 Alternative C – Separate Transmission Towers within Same ROW 4.15-9
4.15.13 Alternative D – Cross-Valley Alignment 4.15-9
4.15.14 Alternative E – New Cross-Valley Alignment 4.15-10
4.15.15 Cumulative Effects 4.15-10
4.15.16 CEQA Considerations 4.15-15
4.16 Environmental Justice 4.16-1
4.16.1 Methodology for Analysis 4.16-1
4.16.2 Applicant Measures 4.16-1
4.16.3 Alternative 1 – No Action (No Plan Amendment) 4.16-1
4.16.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.16-2
4.16.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.16-2
4.16.6 Alternative 4 – Proposed Solar Project 4.16-2
4.16.7 Alternative 5 – Solar Project Excluding WHMA 4.16-4
4.16.8 Alternative 6 – Reduced Footprint Solar Project 4.16-5
4.16.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.16-6
4.16.10 Alternative A – No Gen-Tie 4.16-6
4.16.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.16-7
4.16.12 Alternative C – Separate Transmission Towers within Same ROW 4.16-8

4.16.13 Alternative D – Cross-Valley Alignment 4.16-9
4.16.14 Alternative E – New Cross-Valley Alignment 4.16-10
4.16.15 Cumulative Effects 4.16-11
4.16.16 CEQA Considerations 4.16-13
4.17 Special Designations 4.17-1
4.17.1 Methodology for Analysis 4.17-1
4.17.2 Applicant Measures 4.17-1
4.17.3 Alternative 1 – No Action (No Plan Amendment) 4.17-1
4.17.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.17-1
4.17.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.17-1
4.17.6 Alternative 4 – Proposed Solar Project 4.17-2
4.17.7 Alternative 5 – Solar Project Excluding WHMA 4.17-7
4.17.8 Alternative 6 – Reduced Footprint Solar Project 4.17-8
4.17.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.17-9
4.17.10 Alternative A – No Gen-Tie 4.17-10
4.17.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.17-11
4.17.12 Alternative C – Separate Transmission Towers within Same ROW 4.17-15
4.17.13 Alternative D – Cross-Valley Alignment 4.17-16
4.17.14 Alternative E – New Cross-Valley Alignment 4.17-17
4.17.15 National Park Service 4.17-18
4.17.16 Cumulative Effects 4.17-30
4.17.15 CEQA Considerations 4.17-32
4.18 Transportation and Public Access 4.18-1
4.18.1 Methodology for Analysis 4.18-1
4.18.2 Applicant Measures 4.18-2
4.18.3 Alternative 1 – No Action (No Plan Amendment) 4.18-2
4.18.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) 4.18-3
4.18.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.18-3
4.18.6 Alternative 4 – Proposed Solar Project 4.18-3
4.18.7 Alternative 5 – Solar Project Excluding WHMA 4.18-9
4.18.8 Alternative 6 – Reduced Footprint Solar Project 4.18-10
4.18.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.18-11
4.18.10 Alternative A – No Gen-Tie 4.18-11
4.18.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.18-11
4.18.12 Alternative C – Separate Transmission Towers within Same ROW 4.18-15
4.18.13 Alternative D – Cross-Valley Alignment 4.18-16
4.18.14 Alternative E – New Cross-Valley Alignment 4.18-17
4.18.15 Cumulative Effects 4.18-18
4.18.16 CEQA Considerations 4.18-21

4.19 Visual Resources ..... 4.19-1
  4.19.1 Methodology for Analysis ..... 4.19-1
  4.19.2 Applicant Measures ..... 4.19-5
  4.19.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.19-6
  4.19.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.19-6
  4.19.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.19-6
  4.19.6 Alternative 4 – Proposed Solar Project ..... 4.19-6
  4.19.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.19-21
  4.19.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.19-21
  4.19.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.19-22
  4.19.10 Alternative A – No Gen-Tie ..... 4.19-27
  4.19.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.19-27
  4.19.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.19-30
  4.19.13 Alternative D – Cross-Valley Alignment ..... 4.19-31
  4.19.14 Alternative E – New Cross-Valley Alignment ..... 4.19-33
  4.19.15 Cumulative Effects ..... 4.19-36
  4.19.16 CEQA Considerations ..... 4.19-41
4.20 Water Resources ..... 4.20-1
  4.20.1 Methodology for Analysis ..... 4.20-1
  4.20.2 Applicant Measures ..... 4.20-1
  4.20.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.20-2
  4.20.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.20-2
  4.20.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) ..... 4.20-2
  4.20.6 Alternative 4 – Proposed Solar Project ..... 4.20-3
  4.20.7 Alternative 5 – Solar Project Excluding WHMA ..... 4.20-29
  4.20.8 Alternative 6 – Reduced Footprint Solar Project ..... 4.20-31
  4.20.9 Alternative 7 – High-Profile Reduced Footprint Solar Project ..... 4.20-33
  4.20.10 Alternative A – No Gen-Tie ..... 4.20-34
  4.20.11 Alternative B – Proposed Gen-Tie (Shared Towers) ..... 4.20-35
  4.20.12 Alternative C – Separate Transmission Towers within Same ROW ..... 4.20-36
  4.20.13 Alternative D – Cross-Valley Alignment ..... 4.20-38
  4.20.14 Alternative E – New Cross-Valley Alignment ..... 4.20-39
  4.20.15 Cumulative Effects ..... 4.20-40
  4.20.16 CEQA Considerations ..... 4.20-47
4.21 Solid and Hazardous Wastes ..... 4.21-1
  4.21.1 Methodology for Analysis ..... 4.21-1
  4.21.2 Applicant Measures ..... 4.21-1
  4.21.3 Alternative 1 – No Action (No Plan Amendment) ..... 4.21-1
  4.21.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar) ..... 4.21-1

4.21.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar) 4.21-2
4.21.6 Alternative 4 – Proposed Solar Project 4.21-2
4.21.7 Alternative 5 – Solar Project Excluding WHMA 4.21-4
4.21.8 Alternative 6 – Reduced Footprint Solar Project 4.21-5
4.21.9 Alternative 7 – High-Profile Reduced Footprint Solar Project 4.21-6
4.21.10 Alternative A – No Gen-Tie 4.21-6
4.21.11 Alternative B – Proposed Gen-Tie (Shared Towers) 4.21-6
4.21.12 Alternative C – Separate Transmission Towers within Same ROW 4.21-8
4.21.13 Alternative D – Cross-Valley Alignment 4.21-8
4.21.14 Alternative E – New Cross-Valley Alignment 4.21-9
4.21.15 Cumulative Effects 4.21-10
4.21.16 CEQA Considerations 4.21-11
4.22 Irreversible and Irretrievable Commitment of Resources 4.22-1
4.23 Short-Term vs. Long-Term Productivity of the Environment 4.23-1
4.24 Summary of Unavoidable Adverse Effects 4.24-1
**Chapter 5 – Consultation, Coordination, and Public Participation** 5-1
5.1 Summary of the NEPA Process 5-1
Scoping Process 5-1
Draft EIS 5-5
Final EIS 5-5
Appeal Period and Protest 5-5
Governor's Consistency Review 5-5
Record of Decision 5-5
5.2 Organizations and Persons Consulted 5-6
BLM–County of Riverside Memorandum of Understanding 5-6
Native American Government to Government Consultation 5-6
Section 106 Consultation 5-7
National Park Service Consultation 5-7
Endangered Species Act 5-8
Other Agency Coordination 5-8
5.3 Summary of Comments Received on the Draft EIS 5-8
5.4 Administrative Remedies 5-8
**Chapter 6 – List of Preparers** 6-1
**Chapter 7 – References** 7-1
For Section 2 – Description of the Proposed Action and Alternatives 7-1
For Section 3.2 – Air Resources 7-1
For Section 3.3 – Biological Resources – Vegetation 7-2
For Section 3.4 – Biological Resources - Wildlife 7-4
For Section 3.5 – Climate Change 7-6
For Section 3.6 – Cultural Resources 7-8
For Section 3.7 – Paleontological Resources 7-8
For Section 3.8 – Fire and Fuels Management 7-8
For Section 3.9 – Soils and Geology 7-8

For Section 3.10 – Energy and Mineral Resources 7-9
For Section 3.11 – Lands and Realty 7-9
For Section 3.12 – Noise and Vibration 7-10
For Section 3.13 – Public Health and Safety 7-10
For Section 3.14 – Recreation 7-11
For Section 3.15 – Social and Economic Setting 7-11
For Section 3.16 – Environmental Justice 7-12
For Section 3.17 – Special Designations 7-14
For Section 3.18 – Transportation and Public Access 7-14
For Section 3.19 – Visual Resources 7-15
For Section 3.20 – Water Resources 7-15
For Section 3.21 – Solid and Hazardous Wastes 7-18
For Section 3.22 – CDCA Plan Conformance 7-18
For Section 4.1 – Environmental Consequences Introduction and Overview 7-18
For Section 4.2 – Air Resources 7-19
For Section 4.3 – Biological Resources – Vegetation 7-19
For Section 4.4 – Biological Resources – Wildlife 7-20
For Section 4.5 – Climate Change 7-22
For Section 4.6 – Cultural Resources 7-22
For Section 4.7 – Paleontological Resources 7-23
For Section 4.8 – Fire and Fuels Management 7-24
For Section 4.9 – Soils 7-24
For Section 4.10 – Energy and Mineral Resources 7-24
For Section 4.11 – Lands and Realty 7-24
For Section 4.12 – Noise and Vibration 7-24
For Section 4.13 – Public Health and Safety 7-25
For Section 4.14 – Recreation 7-26
For Section 4.15 – Social and Economic Setting 7-26
For Section 4.16 – Environmental Justice 7-27
For Section 4.17 – Special Designations 7-27
For Section 4.18 – Transportation and Public Access 7-27
For Section 4.19 – Visual Resources 7-27
For Section 4.20 – Water Resources 7-27
For Section 4.21 – Solid and Hazardous Wastes 7-28
For Section 4.22 – Irreversible and Irretrievable Commitment of Resources 7-28
For Section 4.23 – Short-Term versus Long-Term Productivity of the Environment 7-28
For Section 4.24 – Summary of Unavoidable Impacts 7-28
**Chapter 8 – Glossary and List of Acronyms** 8-1
**Chapter 9 – Index** 9-1
**Appendix A** – Figures for All Sections

# LIST OF TABLES FOR VOLUME 2

Table 4.5-1 Total Construction Period CO2 Emissions, Alternative 4 – Proposed Solar Project ... 4.5-2
Table 4.5-2 Annual Operation Emissions, Alternative 4 – Proposed Solar Project ... 4.5-3
Table 4.5-3 Total Construction Period $CO_2$ Emissions, Alternative B – Proposed Gen-Tie (Shared Towers) ... 4.5-9
Table 4.5-4 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.5-15
Table 4.6-1 Cumulative Analysis Results: Estimated Number of Cultural Resources per Acre ... 4.6-22
Table 4.7-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.7-18
Table 4.8-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.8-13
Table 4.9-1 Comparison of Action Alternative Features Relevant to Soil Resources ... 4.9-1
Table 4.9-2 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.9-12
Table 4.10-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.10-10
Table 4.11-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.11-17
Table 4.12-1 Comparison of Distances of the Closest Residences to the Project Features ... 4.12-2
Table 4.12-2 Summary of Construction Noise for the Solar Facility Site ... 4.12-5
Table 4.12-3 Modeled 1-Hour Leq/CNEL Noise Levels from Construction Traffic, Proposed Project ... 4.12-8
Table 4.12-4 Ground Vibration Levels for Typical Equipment Used for Solar Facility Construction ... 4.12-10
Table 4.12-5 Summary of Construction Noise for the Gen-Tie Line (Alternative B) ... 4.12-21
Table 4.12-6 Ground Vibration Levels for Typical Equipment Used for Gen-Tie Line Construction ... 4.12-22
Table 4.12-7 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.12-30
Table 4.12-8 Modeled 1-Hour Leq/CNEL Noise Levels from Cumulative Construction Traffic ... 4.12-32
Table 4.13-1 Hazardous Materials/Petroleum Products Stored on Site During Construction ... 4.13-4
Table 4.13-2 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.13-19
Table 4.14-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.14-11
Table 4.15-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.15-11
Table 4.16-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.16-12
Table 4.17-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.17-31
Table 4.18-1 Construction Trip Generation ... 4.18-4
Table 4.18-2 LOS Summary for Project Construction ... 4.18-4
Table 4.18-3 Operational Trip Generation ... 4.18-7
Table 4.18-4 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.18-19
Table 4.18-5 Desert Sunlight Solar Farm Construction Trip Generation ... 4.18-19
Table 4.18-6 LOS Summary for Cumulative Conditions ... 4.18-20
Table 4.19-1 Visual Resources Cumulative Projects ... 4.19-36
Table 4.20-1 Construction Water Requirements ... 4.20-3
Table 4.20-2 Operational Water Requirements ... 4.20-14
Table 4.20-3 Cumulative Projects within the Geographic Scope of Cumulative Analysis ... 4.20-40

Table 4.20-4 Estimated Water Requirements of Cumulative Projects ..... 4.20-43
Table 4.20-5 Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin ..... 4.20-45
Table 4.21-1 Cumulative Projects within the Geographic Scope of Cumulative Analysis ..... 4.21-10
Table 4.24-1 Summary of NEPA Unavoidable Adverse Effects ..... 4.24-1
Table 4.24-2 CEQA Significant Unavoidable Impacts ..... 4.24-3
Table 5-1 Scoping Comments Addressed in this Draft EIS ..... 5-2
Table 6-1 List of Preparers ..... 6-1

## LIST OF FIGURES FOR VOLUME 2

**All figures appear in Appendix A**

Figure 4.19-1A KOP 1, Joshua Tree Wilderness Eagle Mountains
Figure 4.19-1B KOP 1, Joshua Tree Wilderness Eagle Mountains Visual Simulation
Figure 4.19-1C KOP 1, Joshua Tree Wilderness Eagle Mountains Visual Simulation, Alternative 7
Figure 4.19-2A KOP 2, Joshua Tree Wilderness Coxcomb Mountains
Figure 4.19-2B KOP 2, Joshua Tree Wilderness Coxcomb Mountains Visual Simulation
Figure 4.19-2C KOP 2, Joshua Tree Wilderness Coxcomb Mountains Visual Simulation, Cumulative Effect
Figure 4.19-3A KOP 3, Kaiser Road Project Vicinity
Figure 4.19-3B KOP 3, Kaiser Road Project Vicinity Visual Simulation
Figure 4.19-3C KOP 3A, Kaiser Road Immediate Project Vicinity
Figure 4.19-3D KOP 3A, Kaiser Road Immediate Project Vicinity Visual Simulation, Alternative 7
Figure 4.19-4A KOP 4, Desert Lily Sanctuary ACEC Viewing West
Figure 4.19-4B KOP 4, Desert Lily Sanctuary ACEC Viewing West Visual Simulation, Proposed Gen-Tie Line
Figure 4.19-5A KOP 5, Northbound Kaiser Road Lake Tamarisk
Figure 4.19-5B KOP 5, Northbound Kaiser Road Lake Tamarisk Visual Simulation, Gen-Tie Line Alternative B
Figure 4.19-5C KOP 5, Northbound Kaiser Road Lake Tamarisk Visual Simulation, Gen-Tie Line Alternative C
Figure 4.19-6A KOP 6, Eastbound I-10 East of Desert Center
Figure 4.19-6B KOP 6, Eastbound I-10 East of Desert Center Visual Simulation, Gen-Tie Line, Alternative D
Figure 4.19-7A KOP 7, Northbound SR 177
Figure 4.19-7B KOP 7, Northbound SR 177 Visual Simulation, Gen-Tie Line Alternative E
Figure 4.19-8A KOP 8, Westbound I-10 East of Desert Center
Figure 4.19-8B KOP 8, Westbound I-10 East of Desert Center, Gen-Tie Line Alternative E
Figure 4.19-8C KOP 8A, Westbound I-10 East of Desert Center
Figure 4.19-8D KOP 8A, Westbound I-10 East of Desert Center Visual Simulation of Alternatives 7 and B

# Section 4.5

## Climate Change

## 4.5 CLIMATE CHANGE

### 4.5.1 Methodology for Analysis

This section addresses the effects of greenhouse gas emissions (GHGs) from the Desert Harvest Solar Project (DHSP), as well as the consistency of the proposed project and alternatives with the applicable plans and programs that have been implemented by various federal, state, and local agencies with jurisdiction over the project area. The CEQ published draft guidance in February 2010 for federal agencies to consider the direct and indirect greenhouse gas emissions from proposals for federal actions under NEPA and to quantify and disclose those emissions in the environmental document (Council on Environmental Quality, Draft NEPA Guidance, dated February 18, 2010). The draft guidance provides practical tools for agency reporting, including a presumptive threshold of 25,000 metric tons of carbon dioxide equivalent (MTCO2e) annual emissions from the proposed project to trigger a quantitative analysis.

Potential GHG emissions from construction and operation, including avoided GHG emissions associated with displaced fossil-fuel fired electricity generation, are estimated quantitatively to evaluate the proposed project and alternatives. Climate change effects are long-term, global, and cumulative in nature. Therefore, the GHG emissions impacts described in this section analyze the potential for long-term cumulative effects.

### 4.5.2 Applicant Measures

No applicant measures are proposed.

### 4.5.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.5.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.5.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.5.6 Alternative 4 – Proposed Solar Project

As a solar energy project, the project would have no primary direct $CO_2$ emissions from electricity production during operation, but direct GHG emissions during operation would result from the use of off-road equipment and on-road vehicles used for inspection and maintenance and possible minor leakage from sulfur hexafluoride ($SF_6$) containing electrical equipment. The project is likely to avoid GHG emissions due to the displacement of electricity generated by fossil fuel-fired power plants, offset by a small increase in GHG emissions due to the loss of carbon uptake from the removal of vegetation at the project site.

#### *Construction*

Direct GHG emissions during construction would be generated from use of off-road equipment (such as graders, cranes, and excavators) and from on-road construction vehicle trips (such as heavy haul trips for solar panels and other construction materials like water and aggregate and cement for concrete production, as well as construction employee commuting).

#### *Direct Effects*

Estimated direct construction GHG emissions for the project, including the secondary direct emissions from off-site construction trips, are presented in Table 4.5-1. Detailed assumptions are included in Appendix D.

**Table 4.5-1. Total Construction Period CO2 Emissions, Alternative 4 – Proposed Solar Project**

| | MTCO2e |
|---|---|
| On-road Vehicle Emissions | 9,454.78 |
| Off-road Construction Equipment Emissions | 19,928.21 |
| Total | 29,382.99 |

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.
Note: The total emissions are for the entire 24-month construction period.

The SCAQMD established an interim GHG threshold that considers construction emissions as amortized over 30 years for the service lifetime of a project. Assuming that the project would serve 30 years, the equivalent annual average GHG emissions over the 30-year project life would be 979.43 MTCO2e/year for construction of the DHSP.

#### *Indirect Effects*

There would be no indirect effects associated with Alternative 4 during construction.

#### *Operation and Maintenance*

Operation activities would include routine maintenance of the solar farm facilities, washing the solar panels, removing noxious weeds, and roads maintenance. Routine maintenance includes torque electrical fittings, cleaning switch gear, calibrating protective relays, fire protection system test and annual certification, and fuse swapping and testing ground fault detection and power quality. In order to perform these operation and maintenance activities, the project would require 16 full-time staff and 4 pickup trucks on-site.

### *Direct Effects*

The estimated direct operation GHG emissions related to Alternative 4, including the emissions from employee trips, on-site truck trips, other maintenance and operation activities, are presented in Table 4.5-2. Also presented in this table is the project life amortized construction GHG emissions and an estimate of the GHG emissions displaced from the electrical production of Alternative 4.

**Table 4.5-2. Annual Operation Emissions, Alternative 4 – Proposed Solar Project**

| | MTCO2e per year |
|---|---|
| Employee and O&M Vehicle Emissions | 522.62 |
| Amortized Construction Emissions | 979.43 |
| Total Annualized Direct Emissions | 1,502.05 |
| Displaced Annual GHG Emissions | (92,670) |
| Net Project Annual GHG Emissions | (91,168) |

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.

Total annualized direct GHG emissions are expected to be well below the presumptive threshold for direct emissions of 25,000 MTCO2e/year established in the Council on Environmental Quality's (CEQ's) draft guidance for federal agencies. Therefore, the project would not result in an unavoidable adverse GHG effects.

### *Indirect Effects*

The capacity of Alternative 4 is 150 MW. Based on the project expected generation of over 300,000 MWh annually and a system-wide GHG emission factor of 681 lbs CO2e/MWh for electricity provided by California utilities (USEPA 2011) including SCE, the energy produced by the project would displace 92,670 MTCO2e/year that would otherwise be emitted by power plants currently generating electricity for the California system. Because this would be an indirect effect of the project, the exact nature and location of such reductions is not known, and the magnitude of reductions would diminish over time as the system-wide GHG emission factor would decrease with increased renewable energy in California's generation profile.

The project would cause the clearing of land and removal of vegetation, which would reduce the ongoing natural carbon uptake by vegetation. A study of the Mojave Desert indicated that the desert may uptake carbon in amounts as high as 100 grams per square meter per year (Wohlfahrt et al. 2008). This would equate to a maximum reduction in carbon uptake, calculated as $CO_2$, of 1.48 MT tons of $CO_2$ per acre per year for areas with complete vegetation removal. For this project, which would require 1,208 acres of permanently disturbed areas of vegetation removal, the equivalent loss in carbon uptake would be 1,776 MTCO2e/year, which would be negligible in comparison to other effects of the project on $CO_2$ emissions.

#### Decommissioning

At the end of the life of Alternative 4, above-ground structures would be removed and demolished, and the site would be returned to its original condition. Required decommissioning activities and equipment would be similar to those for project construction.

##### *Direct Effects*

Decommissioning would require removal of the solar panels, towers, and electrical collection system and transporting all components off site. After removal of equipment and facilities, the site would need to be re-vegetated. Equipment used for decommissioning would generally be similar to that used for construction, but the overall activity necessary during decommissioning would be much less than that of construction. Since decommissioning would occur after at least 30 years of operation, it is likely that equipment engine technology would be more advanced and fuels would be cleaner. Therefore, it is anticipated that GHG emissions generated from decommissioning would be similar to or more likely less than those from construction estimated in Table 4.5-1, and the environmental effects of the GHG emissions would be comparable.

##### *Indirect Effects*

There would be no indirect effects associated with the project during decommissioning.

#### Mitigation Measures

Alternative 4 would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

#### Residual Impacts and Unavoidable Adverse Effects

Alternative 4 would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would encompass 1,161 acres and the areas cleared of vegetation would be the same as for Alternative 4, 107 acres.

#### Construction

Construction components of Alternative 5 would be identical to those of Alternative 4.

##### *Direct Effects*

Alternative 5 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 5 would generate slightly less GHG emissions, but the

GHG/climate change effects under Alternative 5 would be essentially the same as those effects under Alternative 4.

### *Indirect Effects*

There would be no indirect effects associated with Alternative 5 during construction.

### *Operation and Maintenance*

Operation and maintenance activities under Alternative 5 would be almost identical to those under Alternative 4.

### *Direct Effects*

Similar to Alternative 4, emission sources for Alternative 5 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 5 would be similar to those effects during Alternative 4; therefore operation of Alternative 5 would not result in an unavoidable adverse effect.

### *Indirect Effects*

Similar to Alternative 4, electricity produced by Alternative 5 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/Climate Change effects during operation of Alternative 5 would be identical to those during operation of Alternative 4.

### *Decommissioning*

Decommissioning under Alternative 5 would be essentially the same as decommissioning under Alternative 4, except that the area that would be re-vegetated would be smaller due to the smaller disturbance acres.

### *Direct Effects*

Required decommissioning activities and equipment under Alternative 5 would be similar to those described under Alternative 4. Alternative 5 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 5 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

### *Indirect Effects*

There would be no indirect effects associated with Alternative 5 during decommissioning.

### *Mitigation Measures*

Similar to Alternative 4, Alternative 5 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

#### Residual Impacts and Unavoidable Adverse Effects

Alternative 5 would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the project as well as some minor portions of the northern parcel where sensitive plants are located. Alternative 6 would encompass 1,044 acres and the areas cleared of vegetation would be slightly less than those for Alternative 4.

#### Construction

Construction components of Alternative 6 would be identical to those of Alternative 4.

##### Direct Effects

Alternative 6 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 6 would generate slightly less GHG emissions, but the GHG/climate change effects under Alternative 6 would be essentially the same as those effects under Alternative 4.

##### Indirect Effects

There would be no indirect effects associated with Alternative 6 during construction.

#### Operation and Maintenance

Operation and maintenance activities under Alternative 6 would be almost identical to those under Alternative 4.

##### Direct Effects

Similar to Alternative 4, emission sources for Alternative 6 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 6 would be similar to those effects during Alternative 4; therefore operation of Alternative 6 would not result in an unavoidable adverse effect.

##### Indirect Effects

Similar to Alternative 4, electricity produced by Alternative 6 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/climate change effects during operation of Alternative 6 would be similar to those during operation of Alternative 4.

***Decommissioning***

Decommissioning under Alternative 6 would be essentially the same as decommissioning under Alternative 4, except that the area that would require re-vegetation would be smaller due to the smaller disturbance acres.

***Direct Effects***

Required decommissioning activities and equipment under Alternative 6 would be similar to those described under Alternative 4. Alternative 6 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 6 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

***Indirect Effects***

There would be no indirect effects associated with Alternative 6 during decommissioning.

***Mitigation Measures***

Similar to Alternative 4, Alternative 6 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

***Residual Impacts and Unavoidable Adverse Effects***

Alternative 6 would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

***Construction***

Construction components of Alternative 7 would be identical to those of Alternative 4.

***Direct Effects***

Alternative 7 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 7 would generate slightly less GHG emissions, but the GHG/climate change effects under Alternative 7 would be essentially the same as those effects under Alternative 4.

### *Indirect Effects*

There would be no indirect effects associated with Alternative 7 during construction.

## *Operation and Maintenance*

Operation and maintenance activities under Alternative 7 would be almost identical to those under Alternative 4.

### *Direct Effects*

Similar to Alternative 4, emission sources for Alternative 7 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 7 would be similar to those effects during Alternative 4; therefore operation of Alternative 7 would not result in an unavoidable adverse effect.

### *Indirect Effects*

Similar to Alternative 4, electricity produced by Alternative 7 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/climate change effects during operation of Alternative 7 would be similar to those during operation of Alternative 4.

## *Decommissioning*

Decommissioning under Alternative 7 would be essentially the same as decommissioning under Alternative 4, except that the area that would require re-vegetation would be smaller due to the smaller disturbance acres.

### *Direct Effects*

Required decommissioning activities and equipment under Alternative 7 would be similar to those described under Alternative 4. Alternative 7 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 7 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

### *Indirect Effects*

There would be no indirect effects associated with Alternative 7 during decommissioning.

## *Mitigation Measures*

Similar to Alternative 4, Alternative 7 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

***Residual Impacts and Unavoidable Adverse Effects***

Alternative 7 would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the proposed project. Therefore, no climate change/GHG effects related to construction, operations and maintenance, or decommissioning would occur.

***Mitigation Measures***

No mitigation measures for climate change/GHG effects are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No climate change/GHG residual impacts or unavoidable adverse effects would result from the implementation of Alternative A.

### 4.5.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm Project (DSSF) by sharing the approved transmission towers. Stringing of enXco's gen-tie line would commence in October 2012 and be completed in February 2013. However, since this construction had not yet begun in September 2011, this analysis assumes that Alternative B would require all related construction activities.

***Construction***

Construction of Alternative B would cause both temporary and permanent disturbance within a construction corridor estimated at a width of 160 feet, plus additional fan-shaped areas at each turn in the alignment with radii of 450 feet needed for wire stringing. The permanent disturbance associated with Alternative B would be limited to the foundations of the transmission structures, the footprint of the access road, and two 75-foot-by-200-foot areas associated with each fan-shaped stringing area, as described previously.

*Direct Effects*

Estimated direct construction GHG emissions for Alternative B, including the secondary direct emissions from off-site construction trips, are presented in Table 4.5-3. Detailed assumptions are included in Appendix D.

**Table 4.5-3. Total Construction Period $CO_2$ Emissions, Alternative B – Proposed Gen-Tie (Shared Towers)**

| | MTCO2e |
|---|---|
| On-road Vehicle Emissions | 940.74 |
| Off-road Construction Equipment Emissions | 351.19 |

**Table 4.5-3. Total Construction Period $CO_2$ Emissions, Alternative B – Proposed Gen-Tie (Shared Towers)**

| | MTCO2e |
|---|---|
| Total | 1,291.93 |

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.
Note: The total emissions are for the entire construction duration.

Assuming that the project would serve 30 years, the annual average GHG emissions over the 30-year project life would be 43.06 MTCO2e/year.

*Indirect Effects*

There would be no indirect effects associated with Alternative B during construction.

***Operation and Maintenance***

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

*Direct Effects*

No additional personnel or equipment would be required for Alternative B; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

*Indirect Effects*

No additional personnel or equipment would be required for Alternative B; therefore no additional impacts would other than those operation and maintenance impacts described for Alternative 4 occur.

***Decommissioning***

At the end of the life of Alternative B, equipment and facilities would be removed and demolished, and the site would be returned to its original condition.

*Direct Effects*

Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur after serving at least 30 years, it is likely that equipment engine technology would be more advanced and fuel would be cleaner. Therefore, GHG emissions during decommissioning of the proposed gen-tie would be significantly less than the GHG emissions associated with its construction.

*Indirect Effects*

There would be no indirect effects associated with Alternative B during decommissioning.

***Mitigation Measures***

By providing transmission infrastructure for production of renewable energy, Alternative B would result in avoided GHG emissions associated with displaced fossil fuel power generation. GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

***Residual Impacts and Unavoidable Adverse Effects***

Alternative B would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.12 Alternative C –Separate Transmission Towers within Same ROW

The Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of First Solar's tower would be constructed. Construction, operation, and maintenance of Alternative C would be identical to that for Alternative B, except for some additional ground disturbance required for the new tower locations, pulling stations, and dead-end poles.

***Construction***

Construction activities required under Alternative C would be essentially the same as those required under Alternative B.

***Direct Effects***

Under Alternative C, construction equipment usage would be identical to Alternative B.

***Indirect Effects***

There would be no indirect effects associated with Alternative C during construction.

***Operation and Maintenance***

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

***Direct Effects***

No additional personnel or equipment would be required for Alternative C; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

### *Indirect Effects*

No additional personnel or equipment would be required for Alternative C; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

### ***Decommissioning***

Decommissioning under Alternative C would be essentially the same as decommissioning under Alternative B, except for removal of the new towers proposed as a part of Alternative C.

### *Direct Effects*

Required decommissioning activities and equipment under Alternative C would be similar to those described under Alternative B, except for additional equipment for disassembly of the new towers proposed under Alternative C. Therefore climate change/GHG effects during Alternative C decommissioning would also be slightly more than decommissioning effects under Alternative B.

### *Indirect Effects*

There would be no indirect effects associated with Alternative C during decommissioning.

### ***Mitigation Measures***

Similar to Alternative B, Alternative C would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

### ***Residual Impacts and Unavoidable Adverse Effects***

Alternative C would have no residual impacts and no unavoidable adverse effects related to climate change.

## 4.5.13 Alternative D – Cross-Valley Alignment

Construction, operation, and maintenance of gen-tie line under Alternative D would be identical to that of gen-tie line under Alternative C, except it would require slightly less temporary and permanent ground disturbance.

### ***Construction***

Construction activities required under Alternative D would be essentially the same as those required under Alternative C.

### *Direct Effects*

Under Alternative D, construction equipment usage would be essentially the same as Alternative C. Therefore effects associated with climate change/GHG under Alternative D would be similar to those effects under Alternative C.

***Indirect Effects***

There would be no indirect effects associated with Alternative D during construction.

***Operation and Maintenance***

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

***Direct Effects***

No additional personnel or equipment would be required for Alternative D; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

***Indirect Effects***

No additional personnel or equipment would be required for Alternative D; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

***Decommissioning***

Decommissioning under Alternative D would be essentially the same as decommissioning under Alternative C.

***Direct Effects***

Required decommissioning activities and equipment under Alternative D would be similar to those described under Alternative C; therefore, climate change/GHG effects during Alternative D decommissioning would also be similar to decommissioning effects under Alternative C.

***Indirect Effects***

There would be no indirect effects associated with Alternative D during decommissioning.

***Mitigation Measures***

Similar to Alternative B, Alternative D would result in avoided emissions associated with displaced fossil fuel power generation, and emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

***Residual Impacts and Unavoidable Adverse Effects***

Alternative D would have no residual impacts and no unavoidable adverse effects related to climate change.

### 4.5.14 Alternative E – New Cross-Valley Alignment

Construction, operation, and maintenance of gen-tie line under Alternative E would be similar to that of gen-tie line under Alternative C, except it would require slightly less temporary and permanent ground disturbance.

#### *Construction*

Construction activities required under Alternative E would be essentially the same as those required under Alternative C.

##### *Direct Effects*

Under Alternative E, construction equipment usage would be essentially the same as Alternative B. Therefore effects associated with climate change/GHG under Alternative E would be similar to those effects under Alternative C.

##### *Indirect Effects*

There would be no indirect effects associated with Alternative E during construction.

#### *Operation and Maintenance*

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

##### *Direct Effects*

No additional personnel or equipment would be required for Alternative E; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

##### *Indirect Effects*

No additional personnel or equipment would be required for Alternative E; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

#### *Decommissioning*

Decommissioning under Alternative E would be essentially the same as decommissioning under Alternative C.

##### *Direct Effects*

Required decommissioning activities and equipment under Alternative E would be similar to those described under Alternative C; therefore, GHG/climate change effects during Alternative E decommissioning would also be similar to decommissioning effects under Alternative C.

***Indirect Effects***

There would be no indirect effects associated with Alternative E during decommissioning.

### Mitigation Measures

Alternative E would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

### Residual Impacts and Unavoidable Adverse Effects

Alternative E would have no residual impacts and no unavoidable adverse effects related to climate change.

## 4.5.15 Cumulative Effects

It is generally agreed within the scientific community that increasing atmospheric concentrations of GHGs can cause changes to current global climate conditions, which could include changes to the local climate at the project site. The specific nature of any localized climate change cannot be reasonably predicted but could include increases or decreases in temperature and rainfall, the increase in severe weather events, or otherwise cause changes to the local climatology. According to the Cal Adapt (2011) interactive modeling tool, temperatures in the Desert Center area are expected to increase by approximately 3 °F under low emissions scenario and approximately 7 °F under high emissions scenario on average by the end of the century.

**Table 4.5-4. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Climate Change | International, global | CO2e | Global Cumulative Impacts |

This entire GHG effects assessment is a cumulative effect assessment, as it is currently impossible to link specific GHG emissions or sequestration to any specific environmental effects associated with climate change. Therefore, there is no link between project-level GHG emissions and direct localized effects. Several global and regional effects are generally attributed to increased temperatures associated with increased atmospheric GHG concentrations. The effects that have been observed or projected in California include a decrease in snowpack, sea level rise, more extreme heat days per year, more high ozone days, increased frequency and intensity of wildfires, and more drought years, with impacts on agriculture, water resources, changes in disease vectors, and changes in habitat and biodiversity.

Construction and operation of Alternatives 4 through 7 and C through E would emit GHGs and, therefore, have been analyzed as a source of potential cumulative effects in the context of long term global and regional effects of climate change and existing GHG regulatory requirements and GHG energy policies. However, the broad integration of renewable energy produced by the proposed project and other renewable energy development in the project area would allow displacement of fossil fuel use for electricity generation, which would avoid GHG emissions that otherwise would occur. Thus, the Proposed Action would not be likely to contribute to adverse cumulative GHG effects considering the indirect emission reduction resulted from the Proposed Action.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative GHG effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.5.16 CEQA Considerations

***CEQA Significance Criteria***

The indicators listed below were used to determine whether the project's GHG emissions would be significant under CEQA. These indicators are based on the significance criteria for air quality listed in the CEQA Environmental Checklist, Appendix G of the CEQA Guidelines. Under CEQA, the proposed project would have a significant impact on climate change if it would:

GHG-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment

GHG-2 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

The SCAQMD adopted an interim GHG significance threshold of 10,000 MTCO2e/year for industrial projects, with a project's construction emissions added after being amortized over 30 years or the project life (SCAQMD 2008).

***CEQA Significance Determination***

Evaluation of CEQA significance for climate change/GHG, which encompasses long-term global and regional impacts, is based on the effects of the entire project from construction through decommissioning. The analysis for GHG is cumulative in nature because individual development projects contribute to the cumulative effects of climate change by emitting GHGs during construction and operational phases.

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts from project-related climate change/GHG would not occur.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and

BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 4.** Alternative 4 would cause direct GHG emissions well below the threshold of CEQA significance of 10,000 MTCO2e/year for industrial projects (as in Table 4.5-2), not including the avoided emissions from the electrical sector that will be enabled by the project's operation. The project as a whole will enable GHG emission reductions within the electricity generation sector; therefore, the impacts of the project, including the effects of avoided emissions, would be less than significant (CEQA significance criterion GHG-1).

As a solar power project, the project would fulfill a portion of the renewable portfolio that is mandated for California and reflected in the CARB AB 32 Scoping Plan and the Governor's Executive Order S-14-08, partially satisfying the goals of the California Renewable Energy Programs (as described above in Climate Change Policies and Regulations). Therefore, the project would conform to applicable plans, policies, and regulations related to GHG emission reductions, and this project impact would be less than significant (CEQA significance criterion GHG-2).

**Alternative 5.** Under Alternative 5 the solar facility would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

**Alternative 6.** Under Alternative 6 the solar facility would be constructed the same as Alternative 4, however, the project would be reduced in size to avoid sensitive plant species. This represents a small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

**Alternative 7.** Under Alternative 7 the solar facility would be constructed the same as Alternative 4, however, the project would be reduced in size to within the same project boundaries as Alternative 6 and would use high-profile single-axis tracking panels that would have a total height of 15 feet. This represents a small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

**Alternative A.** Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no climate change/GHG impacts under criteria GHG-1 and GHG-2 related to construction, operations and maintenance, or decommissioning would occur.

**Alternative B.** Alternative B would cause direct GHG emissions well below the threshold of CEQA significance of 10,000 MTCO2e/year for industrial projects, not including the avoided emissions from the electrical sector that will be enabled by the project's operation. The project as a whole will enable GHG emission reductions within the electricity generation sector; therefore, the impacts of the project, including the effects of avoided emissions, would be less than significant (CEQA significance criterion GHG-1).

As the gen-tie line for a solar power project, the project would fulfill a portion of the renewable portfolio that is mandated for California and reflected in the CARB AB 32 Scoping Plan and the Governor's Executive Order S-14-08, partially satisfying the goals of the California Renewable Energy Programs (as described above in Climate Change Policies and Regulations). Therefore, the project would conform to applicable plans, policies, and regulations related to GHG emission reductions, and this project impact would be less than significant (CEQA significance criterion GHG-2).

**Alternative C.** Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

**Alternative D.** Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

**Alternative E.** Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

### *Cumulative Impacts*

Cumulative impacts are described in Section 4.5.15. As discussed therein, the contribution of the proposed project and alternatives to a cumulative GHG impact would be less than considerable under CEQA.

# Section 4.6

## Cultural Resources

## 4.6 CULTURAL RESOURCES

### 4.6.1 Methodology for Analysis

This section analyzes potential impacts from the construction, operation and maintenance, and closure and decommissioning of the DHSP related to cultural resources. The potential for impacts to cultural resources depends on whether such resources are present and whether they would be encountered during project activities. Cultural resources include materials (e.g., artifacts, structures, or land modifications) that reflect the history of human development as well as places that are valued by Native Americans or local national/ethnic groups.

This analysis evaluates the structural and cultural evidence of human development in the vicinity of the project site and requires appropriate mitigation measures to avoid or reduce impacts to significant historic properties (cultural resources listed on or eligible for listing on the National Register of Historic Places [NRHP]) and the California Register of Historic Resources (CRHR) in the event of project-related disturbance. Prehistoric, ethnographic and historic resources are considered in this assessment.

The basic regulatory process for assessing impacts related to cultural resources consists of five steps:

- Determining the appropriate geographic extent of the analysis for the proposed action and for each alternative action under consideration;
- Conducting an inventory of historic properties within each such geographic area;
- Determining the historical significance of the historic property identified in the inventory for each geographic area;
- Assessing the effects of the proposed and alternative actions on historic properties; and
- Developing measures to resolve those effects.

Further details of each of these phases follow below and help provide the parameters of the present analysis.

**Area of Potential Effects.** Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations at 36 CFR 800, define the Area of Potential Effects (APE) as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16(d)). For purposes of complying with Section 106, the APE for the project consists of the following:

- For archaeological resources (both historic and prehistoric), the APE for direct effects is defined as the area included within the ROW grant for the DHSP (including the solar facility and associated on-site infrastructure, roads, and transmission lines). This includes the maximum depth that would be reached by all foundation excavations and by all pipeline installation trenches, as described in detail in Section 2.4.3.
- The indirect effects APE identifies historic properties whose settings could be adversely affected by industrial development. Visual, auditory, and atmospheric effects from the proposed project are considered in this analysis.

- The APE for ethnographic resources is often identified in consultation with Native Americans and other ethnic groups. These resources may include properties to which Indian Tribes attach religious or cultural significance. Direct effects and indirect effects, including visual, auditory, and atmospheric effects, to these resources are considered in this analysis. For the DHSP, the ethnographic APE includes both the direct and indirect APE.

**Archaeological Resources Inventory.** The records search for the DHSP included collecting information about all known cultural resources within the direct effects APE plus a one-mile buffer. In addition to archival and online research, sources checked included:

- The Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS);
- Previously documented cultural resources or archaeological studies in the project area;
- National Register of Historic Places (NRHP);
- California Register of Historical Resources (CRHR);
- California State Historical Landmarks;
- California Points of Historical Interest;
- California Inventory of Historic Resources;
- BLM Field Office files;
- Local historical societies, museums and research institutions; and
- BLM Cultural Areas of Critical Environmental Concern (ACEC) files.

Pedestrian surveys of the direct effects APE also were conducted. Results of the cultural records search and inventory work are provided in Section 3.6, Cultural Resources. As of April 2012, these surveys are incomplete. The built environment study, the indirect effects study, and the Class III survey of portions of Alternatives B, C, D, and E are ongoing. The results of these studies will be included in the Final EIS.

**Assessing Effects.** The core of a cultural resources analysis under NEPA and Section 106 is the assessment of the character of the effects that a proposed or alternative action may have on historical properties (cultural resources listed on or eligible for listing on the NRHP). The analysis takes into account direct, indirect, and cumulative effects to historic properties.

In accordance with 36 CFR 800.5, which describes criteria for adverse effects, effects on historic properties are considered adverse if one or more of the following conditions would result from implementation of the Proposed Action:

- An undertaking has an effect on a historic property when the undertaking may alter characteristics that qualify the property for inclusion in the NRHP. For the purpose of determining the type of effect, alteration to features of a property's location, setting, or use may be relevant, depending on the property's significant characteristics, and should be considered.

- An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or that alter its setting;
- Neglect of the property, resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property.

Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. A formal finding of effect under Section 106 is made for the proposed undertaking as a whole rather than for individual resources affected by the undertaking.

Under NEPA, direct and indirect effects are those that are more clearly and immediately attributable to the implementation of proposed or alternative actions. Direct effects are those "which are caused by the [proposed or alternative] action and [which] occur at the same time and place" (40 CFR 1508.8(a)). Direct impacts to cultural resources are caused by project development, construction, and co-existence. Indirect effects are those "which are caused by the [proposed or alternative] action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8(b)).

The NHPA Section 106 regulations narrow the range of direct effects and broaden the range of indirect effects relative to the definitions of the same terms under NEPA. Under the NHPA, the term "effect" "means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16(i)). In practice, a "direct effect" under Section 106 is limited to the direct physical disturbance of a historic property. Effects that are immediate but not physical in character, such as visual, auditory, or atmospheric intrusions, and reasonably foreseeable effects that may occur at some point subsequent to the implementation of the proposed undertaking are referred to in the Section 106 process as "indirect effects."

Adverse effects on historic properties are typically considered permanent as these resources are finite and disturbance of them, particularly archaeological sites, cannot be reversed. However, indirect effects to historic properties can be temporary if projects do not permanently impact associated resources and are removed at a future date.

### 4.6.2 Applicant Measures

The Applicant has proposed a single measure to minimize impacts to cultural resources: that a cultural resources monitoring and mitigation plan will be included as a DHSP design feature. The plan will include a description of areas to be monitored during construction, a discovery plan that will address post-review discoveries and unanticipated effects, and provisions for the education of construction workers. The Applicant Measures (AM) has been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land

Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.6.6, as appropriate, to minimize adverse effects to the extent feasible. Mitigation measures encompass the substance and intent of the AM, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures and the AM, the mitigation measures take precedence.

### 4.6.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the proposed project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

### 4.6.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.6.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.6.6 Alternative 4 – Proposed Solar Project

Under Alternative 4, the proposed DHSP would be approved by BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy developments. A 150 megawatt solar generating facility would then be built on two parcels, the northern parcel consisting of 1,052 acres and the southern parcel consisting of 155 acres. Alternative 4 would impact one archaeological site and two proposed historic districts the Desert Training Center Cultural Landscape (DTCCL) and the Prehistoric Trails Network Cultural Landscape (PTNCL). In addition, the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) and the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed) are nearby DHSP components and may also be subject to indirect effects. The indirect effects study is currently ongoing, and the results will be presented in the FEIS. The archaeological site has not been evaluated for eligibility for listing on the NRHP Evaluations of eligibility will be made once all the surveys are complete. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits and may contain unidentified archaeological sites that could be adversely affected.

### *Construction*

#### *Direct Effects*

Construction of Alternative 4 would require clearing and grading that would directly affect archaeological sites, built environment resources, and proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a possible historic setting, and degrading the preservation value of these resources. Specifically, this alternative might affect one prehistoric archaeological site. In addition, the geologic units present at the site have a moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present at the site during construction of the solar facility could directly affect any archaeological sites that might be present. Physical disturbance of NRHP-eligible sites would constitute a significant impact under NEPA. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measure (MM) CUL-1 (Project Cultural Resources Staff) would require a qualified cultural resources specialist to be retained by the project owner to develop and implement the Monitoring and Treatment Plan; MM CUL-2 (Monitoring and Treatment Plan) would require the development and implementation of a plan to guide all project cultural resources work; MM CUL-3 (Authority to Halt) would ensure that cultural resources specialists and monitors have the authority to halt construction in the event of an inadvertent discovery; MM CUL-4 (Cultural Resources Worker Environmental Awareness Program) would require training for all construction personnel; MM CUL-5 (Monitoring for Cultural Resources) would require expert monitoring of all ground disturbance; MM CUL-6 (Cultural Resources Reporting) would require documentation of interim and final results of the construction monitoring program; and MM CUL-7 (Curation of Cultural Resources Collections) would require curation of any cultural resources finds.

Together these mitigation measures would reduce the impacts to the prehistoric resource to less-than-significant, and minimize the potential for adverse effects from solar facility construction to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

#### *Indirect Effects*

Indirect visual, auditory, and atmospheric effects may occur to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures MM CUL-1 through CUL-7 would reduce the impacts from solar facility construction to cultural resources.

## Operation and Maintenance

### *Direct Effects*

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alternative 4 would have a low potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present because it is unlikely that previously undisturbed soils would be disturbed during operations. Therefore, the potential for adverse direct effects on cultural resources is low.

Mitigation Measures CUL-1 through CUL-7 would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is low.

### *Indirect Effects*

Operation and maintenance of Alternative 4 may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). Operation and maintenance of Alternative 4 may also have an impact on the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-9 would reduce the adverse effects from solar facility operation and maintenance to cultural resources.

## Decommissioning

### *Direct Effects*

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative 4 has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-7 would minimize the potential for direct impacts from solar facility decommissioning to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from solar facility decommissioning to as-yet-unidentified archaeological sites.

### *Indirect Effects*

Decommissioning of Alternative 4 may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). Decommissioning of Alternative 4 may also have an impact on the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-9 would reduce the adverse effects from solar facility decommissioning to cultural resources.

### *Mitigation Measures*

The following mitigation measures are required to reduce effects related to cultural resources.

**MM CUL-1 Project Cultural Resources Staff.**

**Project Cultural Resources Specialist.** Prior to the issuance of a Notice to Proceed by BLM, a cultural resources specialist whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by the project owner and approved by the BLM to supervise monitoring of construction excavations and to produce a Monitoring and Treatment Plan for the approved project. Their qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field. The Monitoring and Treatment Plan will be prepared and implemented under the direction of the cultural resources specialist and will address and incorporate MM CUL-1 through MM CUL-9.

**Additional Cultural Resources Staff**

The Project Cultural Resources Specialist may obtain the services of Cultural Resources Monitors and Field Crew if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet BLM qualifications and their resumes must be reviewed and approved by BLM prior to beginning work.

**MM CUL-2 Monitoring and Treatment Plan.** Prior to the issuance of a Notice to Proceed by BLM, the Project Cultural Resources Specialist shall submit a Monitoring and Treatment Plan for the project to the BLM for review and approval. The Monitoring and Treatment Plan shall be prepared and implemented under the direction of the Project Cultural Resources Specialist and shall address and incorporate MM CUL-1 through MM CUL-9. The Monitoring and Treatment Plan shall be prepared at the sole expense of the of the project proponent, and shall meet all BLM and Riverside County regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must minimally address the following:

1. The duties of the Project Cultural Resources Specialist shall be fully discussed, including oversight/management duties with respect to site evaluation, data collection, monitoring, and reporting at both known prehistoric and historic-period archaeological sites and any NRHP and CRHR-eligible prehistoric and historic-period archaeological sites discovered during construction;
2. A general research design shall be developed that:
   a. Charts a timeline of all research activities;

   b. Recapitulates any existing paleoenvironmental, prehistoric, ethnohistoric, ethnographic, and historic contexts to create a comprehensive historic context for the project vicinity;
   c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for the project vicinity; and
   d. Clearly articulates why it is in the public interest to address the research questions that it poses.
3. Artifact collection, retention/disposal, and curation policies shall be discussed, as related to the research questions formulated in the research design. These policies shall apply to cultural resources materials and documentation resulting from evaluation and data recovery at both known prehistoric and historic-period archaeological sites and any NRHP or CRHR-eligible prehistoric and historic-period archaeological sites discovered during construction.
4. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified.
5. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
6. The manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their roles and responsibilities shall be described.
7. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.
8. The commitment to record on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all encountered cultural resources over 50 years of age shall be stated. In addition, the commitment to curate all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery), in accordance with the BLM requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum shall be stated.
9. The commitment of the project owner to pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. The project owner shall identify a curation facility that could accept cultural resources materials resulting from DHSP cultural resources investigations.

10. The contents, format, and review and approval process of the final Cultural Resource Report (CRR) shall be described and shall meet BLM and Riverside County guidelines.

**MM CUL-3** **Authority to Halt Construction.** The project owner shall grant authority to halt construction-related ground disturbance to the Project Cultural Resources Specialist and cultural resources monitors in the event of a discovery. Redirection of construction-related ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the cultural resources specialist. The details of this agreement shall be stipulated in the Monitoring and Treatment Plan Mitigation Measure CUL-2.

**MM CUL-4** **Cultural Resources Worker Environmental Awareness Program (WEAP).** Prior to issuing a BLM Notice to Proceed, the project proponent shall submit evidence of that WEAP training has been provided to construction supervisors and crew to ensure their awareness of requirements regarding the protection of historic properties and procedures to be implemented in the event that archaeological sites are encountered by ground-disturbing activities. This training will be prepared by the Project Cultural Resources Specialist (MM CUL-1), reviewed and approved by the BLM, and presented by a qualified cultural resources specialist. All construction supervisors and crewmembers shall be required to undergo paleontological WEAP training prior to commencement of ground-disturbing activities or prior to beginning work on the project site. WEAP training shall also be required for decommissioning personnel.

**MM CUL-5** **Monitoring for Cultural Resources.** Ground-disturbing activities related to construction, operation, maintenance, and decommissioning shall be monitored by a cultural resources monitor. The personnel involved in monitoring, the qualifications of those personnel, and the monitoring intensity shall be shall be stipulated in the Monitoring and Treatment Plan Mitigation Measure CUL-2. However, at a minimum monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the approved project area, and under direct supervision of a principal archaeologist. All cultural resources personnel will be approved by the BLM through the agency's Cultural Resource Use Permitting process. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Indian Tribes. The Monitoring and Treatment Plan (MM CUL-2) shall indicate the types of locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The project owner shall retain and schedule any required Native American monitors. If cultural resources are encountered during construction or decommissioning, treatment shall occur per Mitigation Measure CUL-2 (Monitoring and Treatment Plan. At a minimum, this treatment will include stop work orders in the vicinity of the find, recordation and evaluation of the find by a qualified cultural resources specialist, notification of the find to BLM and the appropriate state regulatory agency, and appropriate treatment measures, possibly including data recovery or avoidance.

**MM CUL-6** **Cultural Resources Reporting.** The project Cultural Resources Specialist shall document interim results of the construction monitoring program with daily, weekly, or monthly progress reports as necessary to the project owner, state regulatory agency and the BLM. The contents of these reports shall be stipulated in the Monitoring and Treatment Plan per Mitigation Measure CUL-2.

The final cultural resources report shall be written by or under the direction of the project cultural resources specialist and shall be provided in the State of California Archaeological Resource Management Report and appropriate BLM report format. The final document shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices. Additional reporting requirements may be specified in the Monitoring and Treatment Plan per Mitigation Measure CUL-2.

**MM CUL-7** **Curation of Cultural Resources Collections.** All archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with BLM requirements and the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections,* into a retrievable storage collection in a public repository or museum. Additional curation requirements may be specified in the Monitoring and Treatment Plan per Mitigation Measure CUL-2.

#### *Residual Impacts and Unavoidable Adverse Effects*

At this time, it is unknown if impacts on cultural resources as a result of Alternative 4 can be satisfactorily mitigated, primarily because identification efforts have not been completed for this project. NRHP eligibility determinations and findings of effect are pending. Tribal consultation on this project is also ongoing, and may identify additional resources or raise issues that cannot be resolved through mitigation measures.

### 4.6.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would affect the same prehistoric archaeological site and historic districts as Alternative 4, and the disturbed area would be only marginally smaller. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be affected.

#### *Construction*

#### *Direct and Indirect Effects*

The effects resulting from constructing Alternative 5 would be the same as those discussed under Alternative 4.

### *Operation and Maintenance*

***Direct and Indirect Effects***

The effects resulting from the operation and maintenance Alternative 5 would be the same as those discussed under Alternative 4.

### *Decommissioning*

***Direct and Indirect Effects***

The effects resulting from decommissioning Alternative 5 would be the same as those discussed under Alternative 4.

### *Mitigation Measures*

The mitigation measures MM CUL-1 through MM CUL-7 are required to reduce adverse project effects related to cultural resources.

### *Residual Impacts and Unavoidable Adverse Effects*

The unavoidable adverse effects of Alternative 5 would be the same as those discussed under Alternative 4.

## 4.6.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the southern parcel. This alternative would encompass approximately 1,044 acres. Alternative 6 would affect the same cultural resources as Alternative 4. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be impacted. However, a reduced footprint would likely reduce the total number of cultural resources impacted.

### *Construction*

***Direct and Indirect Effects***

The effects resulting from constructing Alternative 6 would be the same as those discussed under Alternative 4.

### *Operation and Maintenance*

***Direct and Indirect Effects***

The effects resulting from the operation and maintenance Alternative 6 would be the same as those discussed under Alternative 4.

### *Decommissioning*

***Direct and Indirect Effects***

The effects resulting from decommissioning Alternative 6 would be the same as those discussed under Alternative 4.

***Mitigation Measures***

The mitigation measures MM CUL-1 through MM CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

***Residual Impacts and Unavoidable Adverse Effects***

The unavoidable adverse effects of Alternative 6 would be the same as those discussed under Alternative 4.

### 4.6.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 125 to 135 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would affect the same cultural resources as Alternative 4. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be impacted. However, a reduced footprint would likely reduce the total number of cultural resources impacted.

***Construction***

***Direct and Indirect Effects***

The effects resulting from constructing Alternative 7 would be the same as those discussed under Alternative 4.

***Operation and Maintenance***

***Direct and Indirect Effects***

The effects resulting from the operation and maintenance Alternative 7 would be the same as those discussed under Alternative 4.

***Decommissioning***

***Direct and Indirect Effects***

The effects resulting from decommissioning Alternative 7 would be the same as those discussed under Alternative 4.

***Mitigation Measures***

The mitigation measures MM CUL-1 through MM CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

***Residual Impacts and Unavoidable Adverse Effects***

The unavoidable adverse effects of Alternative 7 would be the same as those discussed under Alternative 4.

### 4.6.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed Desert Harvest Solar Project gen-tie would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site either available or unavailable for future solar energy development. As a result, the Desert Harvest Solar Project gen-tie would not be constructed. The lack of a gen-tie would prevent the rest of the project from being constructed as well. The BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the Desert Harvest Solar Project would occur.

### 4.6.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Gen-Tie Line Alternative B would exit the southwest portion of the solar facility site, run south along the west side of Kaiser Road, turn east just north of Desert Center, and then run south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of approximately 12.06 miles with a 160-foot wide corridor with plus 450-foot radius fan-shaped stringing areas at each turn. Under this alternative, towers would be shared with the Desert Sunlight Solar Project along the A-1 alignment, should that gen-tie line ultimately be constructed; however, the analysis for direct and indirect effects on cultural resources assumes that complete construction of Alternative B would occur independent of whether the Desert Sunlight gen-tie ultimately is constructed. For combined effects of the two gen-ties, see the cumulative effects analysis in Section 4.6.15.

This alternative may impact two historic districts, two proposed historic districts, and twenty-five archaeological sites. The sites are primarily WWII era sites associated with the DTC. The BLM has previously determined that one of these sites is eligible for the NRHP (P-33-15095) while 10 were determined not eligible. The remaining 12 sites have not been evaluated. Evaluations of eligibility will be made one all the surveys are complete. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits. As such, there is a possibility that as-yet-unidentified archaeological sites within these deposits could be adversely affected.

It is important to note that as of January 2012 only part of this alternative had been surveyed for archaeological resources. Additional resources may be discovered during the ongoing surveys and consultations, and will be reported in the Final EIS.

#### *Construction*

#### *Direct Effects*

Construction of Alternative B would require clearing and grading that would directly impact archaeological sites, built environment resources, and the proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a historic setting, and degrading the preservation value of these resources. Specifically this construction may adversely affect 15 archaeological sites. In addition, the geologic units present along Alternative B have a moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present along the gen-tie line during construction could directly impact (i.e., damage or destroy) any subsurface archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measure (MM) CUL-1 (Project Cultural Resources Staff) would require a qualified cultural resources specialist to be retained by the project owner to develop and implement the Monitoring and Treatment Plan; MM CUL-2 (Monitoring and Treatment Plan) would require the development and implementation of a plan to guide all project cultural resources work; MM CUL-3 (Authority to Halt) would ensure that cultural resources specialists and monitors have the authority to halt construction in the event of an inadvertent discovery; MM CUL-4 (Cultural Resources Worker Environmental Awareness Program) would require training for all construction personnel; MM CUL-5 (Monitoring for Cultural Resources) would require expert monitoring of all ground disturbance; MM CUL-6 (Cultural Resources Reporting) would require documentation of interim and final results of the construction monitoring program; and MM CUL-7 (Curation of Cultural Resources Collections) would require curation of any cultural resources finds.

Together these mitigation measures would reduce the adverse effects and minimize the potential for direct impacts from solar facility construction to as-yet-unidentified archaeological sites.

*Indirect Effects*

Indirect visual, auditory, and atmospheric effects as a result of Alternative B may occur to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures (MM) CUL-1 through (MM) CUL-9 would reduce the impacts from solar facility construction to cultural resources.

***Operation and Maintenance***

*Direct Effects*

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance activities of Alternative B has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from gen-tie facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

*Indirect Effects*

Operation and maintenance of Alternative B may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the

North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the impacts from solar facility operation and maintenance to cultural resources.

### ***Decommissioning***

#### *Direct Effects*

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative B has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

#### *Indirect Effects*

Decommissioning of Alternative B may result in indirect visual, auditory, or atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the impacts from solar facility operation and maintenance to cultural resources.

### ***Mitigation Measures***

Mitigation Measures CUL-1 through CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

### ***Residual Impacts and Unavoidable Adverse Effects***

At this time, it is unknown if impacts on cultural resources as a result of Alternative 4 can be satisfactorily mitigated, primarily because identification efforts have not been completed for this project. NRHP eligibility determinations and findings of effect are pending. Tribal consultation on this project is also ongoing, and may identify additional resources or raise issues that cannot be resolved through mitigation measures.

### 4.6.12 Alternative C – Separate Transmission Towers within Same ROW

Gen-tie line Alternative C follows the same route as Alternative B; however, instead of sharing towers in this alternative each project has separate transmission towers within the same ROW. DHSP towers will be located to the west of DSSP towers. This alternative may impact the same two historic districts, two proposed historic districts, and twenty-five archaeological sites as Alternative B.

As mentioned previously, as of January 2012 only part of this route had been surveyed for archaeological resources. Additional resources may be identified during the ongoing surveys and consultations, and will be reported in the FEIS.

*__Construction__*

***Direct and Indirect Effects***

The effects resulting from constructing Alternative C would be the same as those discussed under Alternative B.

*__Operation and Maintenance__*

***Direct and Indirect Effects***

The effects resulting from the operation and maintenance Alternative C would be the same as those discussed under Alternative B.

*__Decommissioning__*

***Direct and Indirect Effects***

The effects resulting from decommissioning Alternative C would be the same as those discussed under Alternative B.

*__Mitigation Measures__*

Mitigation Measures CUL-1 through CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

*__Residual Impacts and Unavoidable Adverse Effects__*

The unavoidable adverse effects of Alternative C would be the same as those discussed under Alternative B.

### 4.6.13 Alternative D – Cross-Valley Alignment

Gen-tie Alternative D (also formerly evaluated in the Desert Sunlight Solar Farm Project EIS as DSSP Alternative A-2) would exit the southwest corner of the solar facility site, run for a short distance along the east side of Kaiser Road until it intersects with the ROW of an existing SCE transmission line, run to the southeast along the existing transmission ROW, then turn south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of approximately 10.45 miles with a 160- foot wide corridor with 450-foot radial fan-shaped areas at each turn. This alternative may impact two historic districts, two proposed historic districts, and five archaeological sites. The sites are primarily historic archaeological sites, two of which are be associated with the DTC. Currently, BLM has determined that one of these resources is eligible for the NRHP (P-33-18392) while one was determined not eligible. The remaining three resources have not been evaluated. Evaluations of eligibility will be made once all the surveys are complete. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits. As such, there is a possibility that as-yet-unidentified archaeological sites within these deposits could be adversely affected.

It is important to note that as of January 2012 the built environment study, and archaeological surveys are incomplete. Additional resources may be discovered during the ongoing surveys and consultations, and will be reported in the Final EIS.

### ***Construction***

### *Direct Effects*

Construction of Alternative D would require clearing and grading that may directly affect archaeological sites and built environment resources, and may impact the proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a historic setting, and degrading the preservation value of these resources. Specifically this construction may adversely affect at least three NRHP-eligible archaeological sites. In addition, the geologic units present along Alternative D have a moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present along the gen-tie line during construction could directly affect (i.e., damage or destroy) any subsurface archaeological sites that might be present.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct effects from gen-tie construction to as-yet-unidentified archaeological sites.

### *Indirect Effects*

Indirect visual, auditory, and atmospheric effects as a result of Alternative D may occur to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be impacts to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the impacts from solar facility construction to cultural resources.

### ***Operation and Maintenance***

### *Direct Effects*

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alternative D has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct effects from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from gen-tie facility operation and maintenance to as-yet-unidentified archaeological sites.

#### *Indirect Effects*

Operation and maintenance of Alternative D may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the effects from solar facility operation and maintenance to cultural resources.

### ***Decommissioning***

#### *Direct Effects*

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative D has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct effects from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

#### *Indirect Effects*

Decommissioning of Alternative D may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the effects from solar facility operation and maintenance to cultural resources.

### ***Mitigation Measures***

The mitigation measures CUL-1 through CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

### ***Residual Impacts and Unavoidable Adverse Effects***

The unavoidable adverse effects of Alternative D would be the same as those discussed under Alternative B.

### 4.6.14 Alternative E – New Cross-Valley Alignment

Gen-tie Alternative E would exit the southeast corner of the solar farm site, run east across BLM and MWD land, cross Highway 177, intersect with the ROW of an existing SCE transmission line, then turn south across I-10 to the Red Bluff Substation. The transmission corridor covers a total length of approximately 11.47 miles with a 160- foot wide corridor with a 450-foot radial fan-shaped stringing area at each turn. This alternative may impact two historic districts, two proposed historic districts, and five archaeological sites. Four of these sites are historic archaeological sites, two of which are associated with the DTC. BLM has not evaluated these sites for NRHP eligibility. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits. As such, there is a possibility that as-yet-unidentified archaeological sites within these deposits could be adversely affected.

It is important to note that as of January 2012 the built environment study and archaeological resources surveys are incomplete. Additional resources may be identified during the ongoing surveys and consultations, and will be reported in the Final EIS.

***Construction***

***Direct Effects***

Construction of Alternative E would require clearing and grading that would directly archaeological sites, built environment resources, and proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a possible historic setting, and degrading the preservation value of these resources. Specifically this construction might affect five NRHP-eligible archaeological sites. In addition, the geologic units present along Alternative E have a moderate potential to contain archaeological. The physical disturbance of the geologic units present along the gen-tie line during construction could directly impact (i.e., damage or destroy) any cultural resources that might be present.

Mitigation Measures CUL-1 through CUL-7, as described above, would minimize the potential for direct impacts from gen-tie construction to as-yet-unidentified cultural resources.

***Indirect Effects***

Indirect visual, auditory, and atmospheric effects may occur to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). There may also be an impact to the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-9, as described above, would reduce the impacts from solar facility construction to these sensitive resources.

***Operation and Maintenance***

***Direct Effects***

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alternative E would have a low potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present because it is unlikely that previously undisturbed soils would be disturbed during operations. Therefore, the potential for adverse direct effects on cultural resources is low.

Mitigation Measures CUL-1 through CUL-7 would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is low.

#### *Indirect Effects*

Operation and maintenance of Alternative E may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). Operation and maintenance of Alternative E may also have an impact on the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the impacts from operation and maintenance to these sensitive resources.

### *Decommissioning*

#### *Direct Effects*

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative E has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-7 would minimize the potential for direct impacts from solar facility decommissioning to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from solar facility decommissioning to as-yet-unidentified archaeological sites.

#### *Indirect Effects*

Decommissioning of Alternative E may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed). Decommissioning of Alternative E may also have an impact on the proposed DTCCL and PTNCL historic districts.

Mitigation Measures CUL-1 through CUL-7, as described above, would reduce the impacts from operation and maintenance to these sensitive resources.

***Mitigation Measures***

Mitigation Measures CUL-1 through CUL-7, as described above, are required to reduce adverse project effects related to cultural resources.

***Residual Impacts and Unavoidable Adverse Effects***

The unavoidable adverse effects of Alternative E would be the same as those discussed under Alternative B.

### 4.6.15 Cumulative Effects

This section evaluates the potential for DHSP, and other development projects within the vicinity of DHSP, to have cumulative effects to historic properties. These effects may result in a substantially adverse change in the significance of a historic property, potentially jeopardizing its eligibility for listing on the NRHP and CRHR.

***Geographic Scope***

For the cultural resources cumulative analysis, the regional scope was defined at two levels: local and regional. At the local level, the geographic area considered for cumulative impacts on cultural resources is a loosely defined area on either side of I-10 between Desert Center and Blythe in eastern Riverside County, hereafter referred to as the I-10 Corridor. This corridor overlaps to a large extent with BLM's California Desert Conservation Area (CDCA). The Corridor does not have strictly defined boundaries, and therefore does not have an area. However, the area is broadly equivalent to a 4-mile-wide strip (2 miles to either side of I-10) and 48 miles long, between Blythe and Desert Center (Figure 4.1-1). The area of this strip is 192 square miles (122,440 acres). This region was chosen because of its geographical proximity to the proposed project, the large number of recent cultural resources work conducted in the region associated with other large proposed projects, and the broadly similar cultural resources found in the region.

Although the total number of cultural resources present in this area is unknown, a rough order of magnitude estimate can be derived (Table 4.6.1) based on recent surveys related to four proposed solar power projects (Desert Sunlight Solar Farm, Genesis Solar Energy Project, Palen Solar Power Project and Blythe Solar Power Project) which surveyed a total of 29,574 acres (Chandler et al. 2010; Farmer et al. 2009; Keller 2010; Tennyson and Apple 2010). These projects recorded 554 cultural resources, indicating that the Corridor has an average site density of 0.019 cultural resources per acre, and 0.002 potentially eligible resources (historic properties) per acre. This figure suggests that the Corridor originally contained approximately 2,326 cultural resources, 245 of which may have been eligible for the NRHP and the CRHR and therefore considered historic properties.

The information available in The Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) and from similar BLM databases are not detailed enough to support a substantive qualitative cumulative analysis. However, the Desert Training Center Cultural Landscape and Prehistoric Trails Network Cultural Landscape studies designed by the California Energy Commission for the I-10 Corridor are intended to facilitate the development of just such a database. This work is ongoing. In the meantime, information from these four proposed solar projects can also provide a rough idea of the types of historic properties present within the I-10 Corridor (Chandler et al. 2010; Farmer et al. 2009; Keller 2010;

Tennyson and Apple 2010). Pedestrian surveys associated with these projects show that the majority of historic properties in the region are archaeological sites, approximately 16% of which are prehistoric and 80% are historic. Ethnographic sources suggest that portions of the Mojave Desert distant from water sources were primarily used for travel and ritual activities rather than for the collection of resources (Cleland 2005). Other common activities are associated with the collection and processing of wild resources around the edges of the intermittent lakes and quarrying for material for stone tools and ground stone. These sites primarily consist of trails, trail-associated ceramic scatters and petroglyphs, sparse artifact scatters, lithic quarries and possible temporary campsites. The sparse artifact scatters are primarily prehistoric flakes and cores. These tend to blend into the prehistoric isolates, which are also predominantly lithics, forming a landscape with regular but diffuse evidence of prehistoric human activities. Historic period sites are associated with historic mining, movement through the area by automobile, and WWII era maneuvers associated with the DTC/C-AMA. These sites are primarily debris scatters. Some are mainly domestic debris and may have been dumped by passing travelers or off-road vehicle drivers. Others are a mix of domestic military debris, suggesting they are the remains of temporary military camps that were part of the DTC/C-AMA. Occasional military features such as earthen mounds and possible foxholes have also been noted. The historic-period isolates reflect these same kinds of activities.

**Table 4.6.1. Cumulative Analysis Results: Estimated Number of Cultural Resources per Acre**

| Location | Acres | Number of Known Cultural Resources | Number of Potentially Eligible Cultural Resources |
|---|---|---|---|
| Desert Sunlight<br>Genesis<br>Blythe<br>Palen | 29,574 | 554 = Average Density of 0.019 sites per acre | 70 = Average Density of 0.002 sites per acre |
| | | **Estimated Number of Cultural Resources (Acres x 0.019)** | **Estimated Number of Potentially Eligible Cultural Resources (Acres x 0.002)** |
| I-10 Corridor | 122, 440 | 2, 326 | 245 |
| Southern California Desert Region | 11,000,000 | 209,000 | 22,000 |
| **Existing Projects, I-10 Corridor** | | | |
| Chuckwalla Valley Prison and Ironwood Prison | 1,720 | 33 | 3 |
| I-10 Freeway | 2,328 | 44 | 5 |
| 2 Transmission Lines and 1 Gas Line | 348 | 7 | 1 |
| Blythe PV and Energy Projects | 276 | 5 | 1 |
| Chuckwalla Valley Raceway | 400 | 8 | 1 |
| Kaiser Eagle Mountain Mine | 3,500 | 67 | 7 |
| Subtotal | 8,572 | 164 | 18 |
| **Reasonably Foreseeable Future Projects, I-10 Corridor** | | | |
| 2 Transmission Lines and 2 Substations | 366 | 7 | 1 |
| 15 Energy Projects | 47,141 | 896 | 94 |
| Subtotal | 47,507 | 903 | 95 |

At the regional level, the geographic area considered for cumulative impacts on cultural resources is defined as the 11-million acre BLM Southern California Desert Region. Unlike other parts of

California that were more densely occupied in prehistory, little is known about the cultural resources of the desert region examined for this cumulative study. If the same average cultural resources density identified for the I-10 Corridor is applied to the Southern California Desert Region, the region may contain 209,000 cultural resources. Of these resources 22,000 of them may be eligible for the NRHP and the CRHR and therefore considered historic properties. Similarly, according to the CHRIS only 20 percent of Riverside and San Bernardino counties have been surveyed for cultural resources. These studies have resulted in the identification and documentation of more than 20,000 cultural resources. These results suggest that there is a high potential to discover previously undocumented cultural resources within the cumulative study region.

This cumulative analysis for the proposed project and alternatives is based upon:

- Existing development projects on BLM, state, and private lands (Figure 4.1-1, Table 4.1-1).
- Foreseeable projects in the immediate vicinity of the I-10 Corridor (Figure 4.1.1, Table 4.1-2)

***Cumulative Effects Analysis***

*Impacts of Existing Projects*

Analysis of cumulative impacts of existing projects emphasized those projects and developments listed in Table 4.1-1 that are expansive and have disturbed the most acreage. Many of these projects were completed prior to the existence or regular enforcement of state and federal cultural resource laws. As such, the actual number of cultural resources within each project area and the number of cultural resources destroyed by the project is unknown. The following calculations are estimates.

I-10 Corridor

At the regional level, the construction of Chuckwalla Valley and Ironwood State Prisons disturbed approximately 1,720 acres. This cumulative analysis suggests that 33 cultural resources were destroyed during these project, 3 of which may have been eligible for the NHRP and the CRHR and therefore considered historic properties.

The construction of I-10, a four-lane divided highway, with associated bridges, off-ramps, and berm system, also resulted in significant ground disturbance in the Corridor. Assuming a width of a minimum of 200 feet and a length of 48 miles, within the I-10 Corridor this project disturbed approximately 10,137,600 square feet (2,328 acres). This analysis suggests that 44 cultural resources were destroyed during this construction, 5 of which were eligible for the NHRP and the CRHR (historic properties).

Another linear project within the Corridor was the Devers-Palo Verde Transmission Line, a 500 kV transmission line paralleling I-10. The disturbance caused by the construction of transmission lines is generally less than the disturbance caused by freeway construction. However, each line has an associated access road. Based on the construction of the access road and excluding the transmission tower pads, a width of 20 feet for each project and a length of 48 miles was calculated for this analysis (116 acres). A similar calculation was made for the Blythe-Eagle Mountain Transmission Line and a natural gas line, both of which were constructed parallel to I-10. This analysis estimates that during the construction of these three linear projects, approximately 348 acres were disturbed, and 7 cultural resources were destroyed, 1 of which was likely to be eligible for the NHRP and the CRHR (historic property).

The construction of the Chuckwalla Valley Raceway, the Blythe PV Project and the Blythe Energy Project disturbed approximately 676 acres. This cumulative analysis suggests that 13 cultural resources were destroyed during these projects, 2 of which may have been eligible for the NHRP and the CRHR (historic properties).

Finally, the mining activities at the Kaiser Eagle Mountain Mine may have disturbed more than 3,500 acres. Several plans for the use of this disturbed area have been proposed, but, from the perspective of cultural resources, new projects would be unlikely to cause more damage than has already occurred.

In total, together, the larger of the ground-disturbing projects within the I-10 Corridor disturbed at least 8,572 acres, or 7 percent of the Corridor. One hundred and sixty-four of the estimated 2,326 cultural resources were likely destroyed by these projects. Of the 245 historic properties that would have been eligible for the NHRP and the CRHR within the I-10 Corridor, 18 would have been destroyed. Certain site types, particularly those associated with dry lakes may have been disproportionately affected. A more detailed cumulative analysis would be needed to determine if this was the case.

Southern California Desert Region

Within the larger Southern California Desert Region, the most intensive use of the desert and concomitant disturbance of cultural resources has been on designated military installations (e.g., Edwards Air Force Base, Fort Irwin, Twentynine Palms Marine Corps Base, Chocolate Mountain Naval Aerial Gunnery Range), and during General Patton's military training from 1942 to 1944, and during later training maneuvers in May, 1964, throughout the I-10 Corridor.

Cultural resources in the Southern California Desert Region have been primarily affected by past and currently approved projects through the ground disturbance that is required for construction of buildings, facilities, roads, and other infrastructure. Military training operations have been the most destructive, particularly at bombing ranges.

In the case of military installations and maneuvers, however, avoidance of substantial adverse changes to CRHR- and NRHP-eligible historic properties has been accomplished through deliberate project planning. Likewise, the severity of adverse effects to previously unknown cultural resources have been substantially reduced by a variety of strategies including implementing mitigation measures requiring construction monitoring, evaluation of cultural resources discovered during monitoring, and avoidance or data recovery for historic properties evaluated to be NRHP and CRHR-eligible.

Some of the physical evidence of military training exercises at the regional level are at least 50 years old and are therefore potentially CRHR- and NRHP-eligible historic properties. This is particularly the case for historic-period cultural resources associated with General Patton's Desert Training Center (DTC) described in detail in previous subsections. The use of heavy equipment and vehicles and the construction of camps, bunkers, and other features throughout the desert undoubtedly destroyed a number of prehistoric sites. In their place, we have a historic military district, with many individual resources that are known to be, or have the potential to be CRHR- or NRHP-eligible. Previous development within the region has already destroyed a number of DTC sites.

*Impacts of Reasonably Foreseeable Future Projects*

Cultural resources are also expected to be affected by the following reasonably foreseeable future projects. The future construction of residences and infrastructure in the local and regional cumulative analysis study areas will undoubtedly result in impacts to cultural resources. Some of the projects included in this analysis may not be built. This analysis estimates the maximum number of cultural resources that may be destroyed.

I-10 Corridor

Numerous other projects are proposed and under consideration along the I-10 Corridor. It is assumed that the 15 proposed energy projects would destroy all of the cultural resources within the project limits for the purposes of this cumulative analysis. As discussed above, transmission lines are considered to have a smaller impact on cultural resources. Using the same conservative figures used previously, the 2 new transmission lines proposed for the I-10 Corridor would affect an area 20 feet wide and 48 miles long for each project (116 acres). When combined with the construction of 2 new substations, these linear projects would disturb 366 acres.

Together these reasonably foreseeable future projects would disturb 47,507 acres, or 39 percent of the total I-10 Corridor. This cumulative analysis suggests that these projects would destroy 903 cultural resources, 95 of which are likely to be CRHR- and NRHP-eligible historic properties.

Southern California Desert Region

Much of the Southern California Desert Region analyzed for this cumulative analysis consists of the CDCA. Eleven million acres of the 25-million-acre CDCA is managed by the BLM. Although there are undoubtedly other projects that have been proposed for this region, the projects proposed for construction within the BLM California Desert District make a reasonable proxy for patterns across the large area. Solar projects occupying 567,882 acres and wind projects occupying 433,721 acres have been proposed for this region, consisting of nearly 4 percent of the CDCA.

Although the cultural resources density per acre is unknown for this entire region, the density proposed for the I-10 Corridor serves as a reasonable minimum. The disturbance of 1 million acres would result in the destruction of at least 19,000 cultural resources, 2,000 of which are likely to be CRHR- and NRHP-eligible historic properties. If all of this construction took place, the majority of the projects would undergo CEQA and/or NEPA review. Cultural resources that could not be avoided would be tested to evaluate for NRHP eligibility, and eligible sites (historic properties) would be subject to historical documentation or data recovery excavations to mitigate effects. Although these measures would reduce most individual site effects, archaeological excavation and analysis cannot recover all the scientific values of a site. Based on the above, the cumulative loss of approximately 19,000 cultural resources is considered a substantial adverse effect that cannot be mitigated.

Construction of the solar and wind projects proposed throughout this region would result in substantial changes in the setting, feeling, and association of the areas in which they are constructed. These kinds of damages may be especially severe for traditional use areas and traditional cultural properties. Potential adverse effects would include direct effects in the form of physical disturbance or alteration as a result of construction activity or indirect effects in the form of diminished character and setting of traditional use areas due to the presence of industrial structures.

*The Desert Harvest Solar Project in the Cumulative Context*

The development of the DHSP, including Alternatives 4 through 7 and Alternatives C, D, and E, may result in permanent adverse effects to cultural resources related to construction activities (Alternative B cumulative effects are described below). However, these adverse effects would be expected to contribute only a small amount to the possible permanent cumulative impacts related to cultural resources because relatively few resources may be eligible for the CRHR or NRHP. DHSP may have a substantial direct effect on at least 22 archaeological resources, and an indirect effect on two NRHP-listed historic districts. The project may also impact two proposed historic districts.

If the proposed mitigation measures CUL-1 through CUL-9 are properly implemented, the direct effects would be minimized from the DHSP. However, there would remain indirect adverse effects on the two NRHP- listed historic districts.

Effects of the DHSP alternatives would additively combine with impacts from past, present, and reasonably foreseeable projects, and cumulative effects on cultural resources at both the local I-10 Corridor and regional levels would be substantial and adverse. This analysis estimates that more than 800 cultural resources within the I-10 Corridor, and 17,000 cultural resources within the Southern California Desert Region, will potentially be destroyed. Mitigation can reduce the impact of this destruction, but unavoidable adverse cumulative effects would remain.

*Summary of Cumulative Impacts*

Effects of the DHSP alternatives would additively combine with impacts from past, present, and reasonably foreseeable projects, and cumulative effects on cultural resources at both the local I-10 Corridor and regional levels would be substantial and adverse.

The majority of the proposed future projects examined in this analysis would likely undergo CEQA and/or NEPA review. Archaeological sites that could not be avoided would be tested to evaluate NRHP and CRHR eligibility. NRHP and CRHR-eligible historic properties would be subject to historical documentation or data recovery excavations to mitigate effects. Although these measures would reduce effects individual historic properties, archaeological excavation and analysis cannot recover all the scientific values of a site.

This analysis estimates that more than 900 cultural resources within the I-10 Corridor, and 17,000 cultural resources within the Southern California Desert Region, will potentially be destroyed. Some of these sites may be archaeological sites, some of these may be sites to which tribes attach cultural or religious significance, and some may be a combination of the two. The destruction of cultural resources results in the loss of information, but may also cause irreparable damage to the cultural and spiritual values of some resources. In terms of the loss of information, mitigation can reduce the impact of this destruction, but unavoidable adverse effects would remain. In terms of cultural and spiritual impacts, the nature of these impacts and potential mitigation measures can only be determined by members of the community who value the resources and landscapes, in this case Native Americans. Because only they can suggest possible mitigation, if any, this cumulative impact may be unavoidable.

Under the cumulative scenario for Alternative B, which considers that the DSSF gen-tie is constructed and the DHSP gen-tie is located on shared poles with no additional ground disturbance, the DHSP gen-tie would result in no net cumulative impacts on cultural resources in combination with the reasonably foreseeable DSSF gen-tie line. Alternative B would not contribute to cumulative effects.

### 4.6.16 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

***CEQA Significance Criteria***

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to cultural resources Under CEQA, the Project would cause a significant impact if it caused a substantial adverse change in the significance of a historical resource or an archeological resource as defined under CCR, Title 14, Chapter 3, Section 15064.5. The proposed Project would have a significant impact on cultural resources if it would:

CR-1 Cause a substantial adverse change in the significance of a historical resource;

CR-2 Cause a substantial adverse change in the significance of an archaeological resource;

CR-3 Disturb any human remains, including those interred outside of formal cemeteries.

Under all of these criteria, adverse changes and impacts are the following:

- Physical, visual, or audible disturbances resulting from construction and development that would affect the integrity of a resource or the qualities that make it eligible for the CRHR or NRHP;
- Exposure of cultural resources to vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect cultural resources;
- Neglect of a cultural resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe; or
- Transfer, lease, or sale of a cultural resource out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the resource's historic significance.

***CEQA Significance Determination***

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no ground disturbance. No significant impacts to cultural resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to cultural resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to cultural resources would result from the DHSP. Alternative 3 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 4.** Under Alternative 4, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.6 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP that will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative 4, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative 5.** Under Alternative 5, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.7 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative 5, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative 6.** Under Alternative 6, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.8 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative 6, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative 7.** Under Alternative 7, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.8 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative 7, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative A.** Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW, and that impacts to vegetation resources would be as described in the Desert Sunlight EIS (BLM 2011). No significant impacts to cultural resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact.

**Alternative B.** Under Alternative 4, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.11 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative B, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative C.** Under Alternative C, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.12 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative C, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative D.** Under Alternative D, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.13 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative D, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

**Alternative E.** Under Alternative E, the Applicant's proposed project, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.14 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be unavoidable and significant under CEQA.

The construction impacts of Alternative E, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

# Section 4.7

## Paleontology

## 4.7 PALEONTOLOGY

Most impacts on paleontological resources are direct and result from ground disturbance activities. Indirect impacts include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity (i.e., personnel involved in construction and operation of proposed project facilities). Areas with high potential for paleontological resources are evaluated for the amount and type of disturbance and activities that would result in impacts on paleontological resources.

### 4.7.1 Methodology for Analysis

A Potential Fossil Yield Classification (PFYC) for paleontological resources (Roeder 2011) and a draft paleontological resources assessment was prepared (Roeder 2012) for the Desert Harvest Solar Project (DHSP). Correspondence from the Natural History Museum of Los Angeles County and the University of California at Berkeley Museum of Paleontology (UCMP) were reviewed for information regarding known fossil localities and stratigraphic unit sensitivity within the proposed project area. All research was conducted in accordance with BLM and the Society for Vertebrate Paleontology's accepted assessment protocol to determine whether any known paleontological resources exist in the general area and how they might be impacted by the Proposed Action and action alternatives.

### 4.7.2 Applicant Measures

The following Applicant Measure (AM) has been incorporated as design features of the proposed project (and all action alternatives) by the applicant to reduce adverse impacts associated with the project. However, this Applicant Measure has been replaced by the project-specific mitigation measures (MM PAL-1 through MM PAL-8), set forth in Section 4.7.5. Mitigation measures encompass the substance and intent of the AM, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate.

**AM-PAL-1** The Applicant shall be responsible for the following measures:

- A qualified paleontologist will conduct a study to further characterize the paleontological sensitivity of the Project Study Area.
- Prior to construction enXco will retain a qualified Project Paleontologist to design and implement a mitigation program during project-related earth-moving activities. The paleontological resource mitigation program will include the preparation of mitigation and monitoring plan for construction monitoring; emergency discovery procedures; sampling and data recovery, if needed; museum storage coordination for any specimen and data recovered; pre-construction coordination; and reporting.
- Construction personnel involved with earth-moving activities will be informed by the Project Paleontologist of the possibility of encountering fossils, how to identify fossils, and proper notification procedures. This worker training will be prepared and presented by a qualified paleontologist. A construction contractor superintendent will be identified and provided with contact information for notifying the Project Paleontologist if any potential paleontological resources are encountered during construction.

- Grading and excavation within old alluvium or earthmoving at depths greater than 10 feet should be monitored by a qualified paleontologist, along with older alluvium which occurs at depths less than 10 feet.

### 4.7.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

### 4.7.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.7.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.7.6 Alternative 4 – Proposed Solar Project

Under Alternative 4, the proposed DHSP solar facility would be approved by BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy developments. A 150 megawatt solar generating facility would then be built on two parcels, the northern parcel consisting of 1,052 acres and the southern parcel consisting of 155 acres. Alternative 4 would impact at least one previously identified fossil locality consisting of Gopherus (tortoise) found in the Quaternary alluvium in the eastern portion of the solar facility. The geologic unit underlying these two parcels is Quaternary alluvium (Qal) and possibly Quaternary-Tertiary playa sediments (QT), both of which have been assigned a Class 4-High sensitivity rating under the BLM PYFC. As such, there is a possibility that as-yet-unidentified significant paleontological resources could be adversely affected.

### Construction

#### Direct Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of the geologic units present at the site during construction of the solar facility could directly impact (i.e., damage or destroy) any fossils that might be present. Therefore, the potential for adverse direct effects on paleontological resources is high.

Mitigation Measure (MM) PAL-1 (Project Paleontological Staff) outlines the qualifications of all individuals conducting paleontological work within the proposed project area; MM PAL-2 (Paleontological Mitigation and Monitoring Plan) outlines the details of how monitoring and mitigation would be conducted for the disturbance of undisturbed strata in rock units of moderate and high sensitivity; MM PAL-3 (Authority to Halt Ground Disturbance) emphasizes the authority of paleontological staff to halt construction equipment if necessary; MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel; MM PAL-5 (Construction Monitoring for Paleontological Resources) would require spot-checking and full-time monitoring of undisturbed rock strata of moderate and high sensitivity; MM PAL-6 (Paleontological Reporting) outlines how and when the results of paleontological monitoring and mitigation is reported; and MM PAL-7 (Curation of Paleontological Materials) specifies how and when any fossils or related documentation should be stored after it is collected. Together these mitigation measures would minimize the potential for direct impacts from solar facility construction to paleontological resources.

#### Indirect Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Indirect effects include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. Project construction would increase the number of personnel in the project area. Therefore, the potential for adverse indirect effects on paleontological resources is high. Mitigation Measure MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel, and would minimize the potential for indirect impacts from solar facility construction to fossil resources.

### Operation and Maintenance

#### Direct Effects

Operations would not disturb any previously undisturbed areas of the solar facility site. No direct effects to paleontological resources associated with operation and maintenance of Alternative 4 would occur.

#### Indirect Effects

The geologic units present at the site have high potential to contain vertebrate fossils and other scientifically valuable paleontological resources; however, the density of surface deposits of scientifically significant fossils is expected to be low. Indirect impacts that may occur during operation and maintenance of Alternative 4 include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of visitors in the vicinity of the solar facility. While no visitor center is proposed as a part of the solar facility, and visitors would not typically be allowed onto the site, there is the potential for the solar facility to attract a small number of visitors who would drive and park along the periphery of the solar facility, within the gen-tie ROW and the vicinity, particularly during the first few years of operation. In the absence of a visitor center, visitation is expected to be low. In addition, the density of surface deposits of scientifically significant fossils is expected to be low. Finally, any rare fossils exposed on the surface of the approved gen-tie corridor will be collected by a qualified paleontologist during implementation of MM PAL-5 (Construction Monitoring for Paleontological Resources). The potential for indirect effects from operation and maintenance of Alternative 4 on paleontological resources is therefore low, and no mitigation is necessary.

### *Decommissioning*

#### *Direct Effects*

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. While a majority of rare fossils and other significant paleontological resources would be identified during surface-disturbing activities associated with construction, decommissioning activities may not be limited to disturbing only previously disturbed soils, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The physical disturbance of the geologic units present at the site during decommissioning of the solar facility could directly impact (i.e., damage or destroy) any fossils that might be present in remaining undisturbed soils. Therefore, the potential for direct impacts on paleontological resources is high. All mitigation measures PAL-1 through PAL-7 would be required during decommissioning of the solar facility.

#### *Indirect Effects*

Indirect effects from decommissioning of the solar facility are identical to those during construction (unauthorized fossil collection by personnel). MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all decommissioning personnel, and would minimize the potential for indirect impacts to fossil resources from Alternative 4 decommissioning.

### *Mitigation Measures*

The following mitigation measures would reduce adverse effects on paleontological resources.

**MM PAL-1** **Project Paleontological Staff.**

**Project Paleontologist** – Prior to the issuance of a Notice to Proceed by BLM, a qualified paleontologist approved by the BLM to serve as Project Paleontologist shall be retained by the project owner. This individual shall retain a BLM paleontological resource use permit for the project and a paleontological permit from the County of Riverside. To do so this individual shall have the following qualifications as stipulated in BLM Manual 8270-1:

a. Professional instruction in a field of paleontology relevant to the work proposed (vertebrate, invertebrate, trace, paleobotany, etc.), obtained through:

(1) Formal education resulting in a graduate degree from an accredited institution in paleontology, or in geology, biology, botany, zoology or anthropology if the major emphasis is in paleontology; OR

(2) Equivalent paleontological training and experience including at least 24 months under the guidance of a professional paleontologist who meets qualification above that provided increased responsibility leading to professional duties similar to those in qualification above; and

b. Demonstrated experience in collecting, analyzing, and reporting paleontological data, similar to the type and scope of work proposed in the application;

c. Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews performing the work proposed in the application;

d. Demonstrated experience in carrying paleontological projects to completion as evidenced by timely completion and/or publication of theses, research reports, scientific papers and similar documents.

The resume of the proposed Project Paleontologist will be submitted to BLM, in consultation with the BLM regional paleontologist, for review and approval.

As described in BLM IM 2009-011, the Project Paleontologist will serve as the Principal Investigator (PI) under the BLM permit and is responsible for all actions under the permit, for meeting all permit terms and conditions, and for the performance of all other personnel. This person is also the contact person for the project proponent and the BLM.

**Additional Paleontological Staff** – The Project Paleontologist may obtain the services of Paleontological Field Agents, Field Monitors, and Field Assistants, if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet the qualifications described in BLM IM 2009-011, and their resumes must be reviewed and approved by BLM prior to beginning work.

**MM PAL-2** **Paleontological Mitigation and Monitoring Plan (PMMP).** Prior to the issuance of a Notice to Proceed by BLM, the Project Paleontologist shall submit a Paleontological Mitigation and Monitoring Plan (PMMP) for the project to the BLM for review and approval. The appropriate Paleontology Lead or Regional Paleontologist shall review the plan for sufficiency prior to acceptance. The PMMP shall be prepared and implemented under the direction of the Project Paleontologist and shall address and incorporate MM PAL-1 through MM PAL-8. The PMMP shall be prepared at the sole expense of the project proponent, and be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all BLM and Riverside County regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must minimally address the following:

1. Identification and mapping of impact areas of moderate to high sensitivity that will be monitored or spot-checked during construction;

2. A coordination strategy to ensure that a qualified paleontologist (MM PAL-1) will conduct monitoring at the appropriate locations at the appropriate intensity;
3. The significance criteria to be used to determine which resources will be avoided or recovered for their data potential;
4. Procedures for the discovery, recovery, preparation, and analysis of paleontological resources encountered during construction, in accordance with standards for recovery established by the SVP and the BLM;
5. Provisions for verification that the project proponent has an agreement with a recognized museum repository, for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged);
6. Specifications that all paleontological work undertaken by the project proponent on public land shall be carried out by qualified paleontologists with appropriate current permits (MM PAL-1), including but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and a Riverside County permit (for work on lands administered by the County of Riverside);
7. Description of monitoring reports that will be prepared which shall include daily logs, monthly reports, and a final monitoring report with an itemized list of specimens found to be submitted to the BLM, the Riverside County Planning Department, the project proponent and the designated repository within 90 days of the completion of monitoring;
8. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified; and
9. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
10. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

**MM PAL-3** **Authority to Halt Ground Disturbance.** As specified in BLM IM 2009-011, if significant fossil material is discovered during construction activities, the Project Paleontologist, Field Agents, and Field Monitors have the authority to temporarily halt surface disturbing actions until an assessment of the find is completed and appropriate protection measures taken. The length of time ground disturbance will be halted, the size of the area where work is halted, and the details of the assessments and treatments are described in detail in the PMMP (MM PAL–2). Work may not resume until approval is granted from both the Project Paleontologist and the BLM Authorized Officer.

**MM PAL-4** **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to issuing a BLM Notice to Proceed, the project proponent shall submit evidence of that WEAP training has been provided to construction supervisors and crew to ensure their awareness of requirements regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered by ground-disturbing activities. This training will be prepared by the Project Paleontologist (MM PAL-1), reviewed and approved by the BLM, and presented by a qualified paleontologist. All construction supervisors and crewmembers shall be required to undergo paleontological WEAP training prior to commencement of ground-disturbing activities or prior to beginning work on the project site. WEAP training shall also be required for decommissioning personnel.

**MM PAL-5** **Construction Monitoring for Paleontological Resources.** The project proponent shall continuously comply with the following during all ground disturbing activities during project construction and operations:

1. If project ground-disturbing activities will affect previously undisturbed strata in rock units of moderate potential (Class 3), specifically Quaternary Nonmarine Sediments, spot-checking by the Project Paleontologist or other qualified paleontologist will be required.
2. If project ground-disturbing activities will affect previously undisturbed strata in rock units of high potential (Class 4 or higher), specifically Quaternary Alluvium, Quaternary Sand, Quaternary Lake Deposits, and Quaternary-Tertiary Lake Deposits, full time monitoring by the Project Paleontologist or other qualified paleontologist will be required.
3. Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Project Paleontologist. Monitoring shall be conducted as follows:
    a. Monitoring of ground disturbance shall consist of the surface collection of visible vertebrate and significant invertebrate fossils within the project site. Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be halted and diverted and the Project Paleontologist shall be notified. Once the find has been inspected and a preliminary assessment has been made, the Project Paleontologist will notify the BLM and the County of Riverside Planning Department of the discovery within 24 hours. If recovery of a large or unusually productive fossil occurrence is warranted, earthmoving activities shall be diverted temporarily around the fossil locality, and a recovery crew shall be mobilized to remove the material as quickly as possible. The monitor shall be permitted to photograph and/or draw stratigraphic profiles of cut surfaces and take samples for analysis of

microfossils, dating, or other specified purposes in accordance with the PMMP (MM PAL-2).

b. Recovered specimens shall be prepared to a point of identification, including washing of sediments to recover smaller fossil remains. Once excavation has reached specified depths, salvage of fossil material from the side walls of the cut shall resume. Specimens shall be identified and curated into a repository with retrievable storage (MM PAL-7).

c. All significant fossil specimens recovered from the project site as a result of the paleontological monitoring and mitigation program shall be treated (prepared, identified, curated, and cataloged) in accordance with the designated repository requirements. Samples shall be submitted to a laboratory, acceptable to the designated repository, for identification, dating, and microfossil and pollen analysis.

Construction monitoring or spot checking as appropriate, shall also be required for the decommissioning period.

**MM PAL-6** **Paleontological Reporting.** The Project Paleontologist shall document the results of the construction monitoring program with daily monitoring reports, monthly progress reports and a final report submitted to BLM, the state regulatory agency, the designated repository and the project proponent as outlined in the PMMP (MM PAL-2). All reports shall be prepared in accordance with BLM, Society of Vertebrate Paleontology guidelines, and state regulatory agency requirements. Reporting shall also be required for the decommissioning period if any new fossils are identified during monitoring of decommissioning activities.

Daily and monthly reporting will include at a minimum a completed BLM locality form 8270-3 or equivalent for each new locality using 1:24000 scale maps with new localities plotted.

Upon completion of all field work, a final report of the monitoring and mitigation conducted must be submitted to the BLM and the County of Riverside Planning Department for review and approval. At a minimum the final report must include the following details as specified by BLM IM 2009-011:

1. Name, affiliation, address, date of report, and permit number (if consultant) of the paleontologist doing the survey.
2. Project name and number (if used), name of proponent, and general location of project.
3. Date(s) of the survey and names of any personnel assisting with the survey.
4. Brief description of project and expected impacts to paleontological resources.
5. A summary of mitigation performed.
6. A summary of findings, including important discoveries.
7. A description of potentially fossiliferous areas to allow for future assessment of sites, even if no fossils were located during the project monitoring.

8. A completed BLM locality form 8270-3 or equivalent for each new locality using Universal Transverse Mercator (UTM) NAD 83 coordinates, and 1:24000 scale maps with new localities plotted using points or polygons as appropriate. Locality forms, maps, and any other information containing specific fossil locations should be bound separately or assembled as a separate section to allow for preservation of confidential locality data.
9. List of specimen field numbers and field identifications of collected material, cross-referenced to the locality field number.

**MM PAL-7** **Curation of Paleontological Materials.** Prior to issuing a BLM Notice to Proceed, as specified by BLM Manual 8270-1 the project proponent shall submit written certification from a repository willing to accept the collections and other materials resulting from work done for the project. The project owner shall curate the fossil collections, provide appropriate field and laboratory documentation, and complete the final Paleontological Resource Recovery Report within 90 days from the completion of monitoring. Curation and documentation shall also be required for the decommissioning period if any new fossils are identified during monitoring of decommissioning activities.

***Residual Impacts and Unavoidable Adverse Effects***

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 4 have been identified.

### 4.7.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would affect the same fossil locality as Alternative 4, and the disturbed area would be only marginally smaller. In addition, there is a high probability that as-yet-unidentified resources could be affected.

***Construction***

***Direct and Indirect Effects***

The effects resulting from constructing Alternative 5 would be the same as those discussed under Alternative 4.

***Operation and Maintenance***

***Direct and Indirect Effects***

The effects resulting from the operation and maintenance of Alternative 5 would be the same as those discussed under Alternative 4.

### *Decommissioning*

#### *Direct and Indirect Effects*

The effects resulting from the decommissioning of Alternative 5 would be the same as those discussed under Alternative 4.

### *Mitigation Measures*

Mitigation measures MM PAL-1 through MM PAL-7, as described above, would minimize adverse project effects related to paleontology.

### *Residual Impacts and Unavoidable Adverse Effects*

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 5 would occur.

## 4.7.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the southern parcel. This alternative would encompass 1,044 acres. Alternative 6 would affect the same fossil locality as Alternative 4. In addition, there is a high probability that as-yet-unidentified resources could be impacted. However, a reduced footprint would likely reduce the total number of paleontological resources impacted.

### *Construction*

#### *Direct and Indirect Effects*

The severity of adverse effects resulting from the construction of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

### *Operation and Maintenance*

#### *Direct and Indirect Effects*

The severity of adverse effects resulting from the operation and maintenance of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

### *Decommissioning*

#### *Direct and Indirect Effects*

The severity of adverse effects resulting from decommissioning of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

***Mitigation Measures***

Mitigation measures MM PAL-1 through MM PAL-7, as described above, would minimize adverse project effects related to paleontology.

***Residual Impacts and Unavoidable Adverse Effects***

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 6 would occur.

### 4.7.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 125 to 135 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would affect the same fossil locality as Alternative 4. In addition, there is a high probability that as-yet-unidentified resources could be impacted. However, a reduced footprint would likely reduce the total number of paleontological resources impacted.

***Construction***

***Direct and Indirect Effects***

The severity of adverse effects resulting from the construction of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

***Operation and Maintenance***

***Direct and Indirect Effects***

The severity of adverse effects resulting from the operation and maintenance of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

***Decommissioning***

***Direct and Indirect Effects***

The severity of adverse effects resulting from decommissioning of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

***Mitigation Measures***

Mitigation measures MM PAL-1 through MM PAL-7, as described above, would minimize adverse project effects related to paleontology.

### *Residual Impacts and Unavoidable Adverse Effects*

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 7 would occur.

### 4.7.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed DHSP gen-tie would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site either available or unavailable for future solar energy development. As a result, the DHSP gen-tie would not be constructed. The lack of a gen-tie would prevent the rest of the project from being constructed as well. The BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.7.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would exit the southwest portion of the solar facility site, run south along the west side of Kaiser Road, turn east just north of Desert Center, and run south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of 12.06 miles with a 160-foot wide corridor plus 450-foot radial stringing areas at each turn. Under this alternative, towers would be shared with the Desert Sunlight Solar Project along the A-1 alignment should that gen-tie line ultimately be constructed; however, the analysis for direct and indirect effects on paleontological resources assumes that complete construction of Alternative B would occur independent of whether the Desert Sunlight gen-tie ultimately is constructed. For combined effects of the two gen-ties, see the cumulative effects analysis in Section 4.7.13. This alternative is underlain by one Class 3-Moderate (Pleistocene nonmarine deposits) and two Class 4-High sensitivity geologic rock units (older Pleistocene nonmarine deposits, Quaternary alluvium). No fossils have been cited as being found within the Alternative B corridor. However, as of January 2012 only part of this alternative had been surveyed for paleontological resources.

### *Construction*

#### *Direct Effects*

The geologic units present at the site have moderate and high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during construction of Alternative B has a high potential for direct adverse effects (i.e., to damage or destroy any fossils) for any paleontological resources that might be present along the route.

Mitigation Measure (MM) PAL-1 (Project Paleontological Staff) outlines the qualifications of all individuals conducting paleontological work within the project area; MM PAL-2 (Paleontological Mitigation and Monitoring Plan) outlines the details of how monitoring and mitigation would be conducted for the disturbance of undisturbed strata in rock units of moderate and high sensitivity; MM PAL-3 (Authority to Halt Ground Disturbance) emphasizes the authority of paleontological staff to halt construction equipment if necessary; MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel; MM PAL-5 (Construction Monitoring for Paleontological Resources) would require spot-checking and full-time monitoring of undisturbed rock strata of moderate and high sensitivity; MM PAL-6 (Paleontological Reporting) outlines how and when the results of paleontological monitoring and mitigation is reported; and MM PAL-7 (Curation of Paleontological Materials) specifies how and when any fossils or related documentation should be stored after it is collected. Together these mitigation measures would minimize the potential for direct impacts from solar facility construction to paleontological resources.

*Indirect Effects*

The geologic units present at the site have a moderate to high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Indirect adverse effects that may occur during the construction of Alternative B include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of personnel in the vicinity. The potential for indirect impacts on paleontological resources is moderate to high. MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel and would minimize potential indirect effects from construction of Alternative B.

***Operation and Maintenance***

*Direct Effects*

No direct effects to paleontological resources associated with operation and maintenance would occur.

*Indirect Effects*

The geologic units present along the Alternative B corridor have a moderate to high potential to contain vertebrate fossils and other scientifically valuable paleontological resources; however, the density of surface deposits of scientifically significant fossils is expected to be low.

Indirect adverse effects that may occur during operation and maintenance of Alternative B include the potential for increased unauthorized collection of fossils and other paleontological resources by visitors. Visitation is expected to occur in the immediate vicinity of the solar facility and is not expected to occur as a result of the presence of the gen-tie line. The potential for indirect effects from operation and maintenance of Alternative B on paleontological resources is therefore low, and no mitigation is necessary.

***Decommissioning***

*Direct Effects*

The physical disturbance of the geologic units present at the site during decommissioning of Alternative B could directly impact (i.e., damage or destroy) any fossils that might be present. Once the gen-tie was removed, no additional direct impacts would be likely. The geologic units present at the site have moderate to high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct impacts on paleontological resources is moderate to high.

*Indirect Effects*

Indirect effects from decommissioning of Alternative B are identical to those during construction of Alternative B (unauthorized fossil collection by personnel). MM PAL-4 (Paleontological

Worker Environmental Awareness Program) would require training of all decommissioning personnel, and would minimize the potential for indirect impacts to fossil resources from Alternative B decommissioning.

#### Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-7, as described above, are required to reduce adverse project effects related to paleontology.

#### Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources have under Alternative B have been identified.

### 4.7.12 Alternative C –Separate Transmission Towers within Same ROW

Gen-tie line Alternative C follows the same route as Alternative B; however, instead of sharing towers in this alternative each project has separate transmission towers within the same ROW. Gen-tie line Alternative C towers will be located to the west of DSSP towers. This alternative is underlain by the same geologic units as Alternative B, one Class 3-Moderate (Pleistocene nonmarine deposits) and two Class 4-High sensitivity geologic rock units (older Pleistocene nonmarine deposits, Quaternary alluvium). As mentioned previously, as of January 2012 only part of this route had been surveyed for paleontological resources. At this time no paleontological resources have been identified within the route.

#### Construction

##### Direct Effects

The direct effects resulting from the construction of Alternative C would be the same as those discussed under Alternative B (physical disturbance of significant fossils).

##### Indirect Effects

The indirect effects resulting from the construction of Alternative C would be the same as those discussed under Alternative B (unauthorized fossil collection by personnel).

#### Operation and Maintenance

##### Direct Effects

No direct effects to paleontological resources associated with operation and maintenance would occur for Alternative C.

##### Indirect Effects

The indirect effects resulting from the operation and maintenance of Alternative C (fossil collection by visitors) would be the same as those discussed under Alternative B.

### Decommissioning

#### *Direct Effects*

The direct effects resulting from the decommissioning of Alternative C would be the same as those discussed under Alternative B.

#### *Indirect Effects*

The indirect effects resulting from the decommissioning of Alternative C would the same as those discussed under Alternative B.

### Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-7, as described above, would reduce adverse project effects related to paleontology.

### Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative C would occur.

## 4.7.13 Alternative D – Cross-Valley Alignment

Gen-tie line Alternative D (formerly evaluated in the Desert Sunlight Solar Farm Project EIS as DSSP Alternative A-2) would exit the southwest corner of the solar facility site, run for a short distance along the east side of Kaiser Road until it intersects with the right-of-way (ROW) of an existing SCE transmission line, run to the southeast along the existing transmission ROW, then turn south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of 10.45 miles with a 160- foot wide corridor with 450-foot radial stringing areas at each turn. This alternative is underlain by Quaternary alluvium which is a Class 4-High sensitivity geologic formation. As of January 2012 none of this route had been surveyed for paleontological resources.

### Construction

#### *Direct Effects*

The magnitude of direct effects resulting from the construction of Alternative D would be the same as those discussed under Alternative B (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater. MMs PAL-1 through PAL-7, as described above, would minimize potential effects.

#### *Indirect Effects*

The magnitude of indirect effects resulting from the construction of Alternative D would be the same as those discussed under Alternative B (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater. MM PAL-4, as described above, would minimize potential effects.

***Operation and Maintenance***

*Direct Effects*

No direct effects to paleontological resources associated with operation and maintenance Alternative D would occur.

*Indirect Effects*

The indirect effects resulting from the operation and maintenance of Alternative D would be the same as those discussed under Alternative B (fossil collection by visitors). No mitigation is warranted.

***Decommissioning***

*Direct Effects*

The magnitude of direct effects resulting from decommissioning of Alternative D would be the same as those discussed under Alternative B (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater. MMs PAL-1 through PAL-7 as described above, would minimize potential effects.

*Indirect Effects*

The magnitude of indirect effects resulting from decommissioning Alternative D would be the same as those discussed under Alternative B (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater. MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all decommissioning personnel, and would minimize the potential for indirect impacts to fossil resources from Alternative D decommissioning. MM PAL-3 would minimize potential effects.

***Mitigation Measures***

The mitigation measures MM PAL-1 through MM PAL-7, as described above, would reduce adverse project effects related to paleontology.

***Residual Impacts and Unavoidable Adverse Effects***

No residual impacts or unavoidable adverse effects on paleontological resources have under Alternative D have been identified.

### 4.7.14 Alternative E – New Cross-Valley Alignment

Gen-tie line Alternative E would exit the southeast corner of the solar farm site, run east across BLM and MWD land, cross Highway 177, intersect with the right-of-way (ROW) of an existing SCE transmission line, then turn south across I-10 to the Red Bluff Substation. The transmission corridor covers a total length of 11.47 miles with a 160- foot wide corridor and 450-foot radial stringing areas at each turn. This alternative is underlain by five geologic units (Quaternary-Tertiary playa deposits, Pleistocene nonmarine deposits, Quaternary lake deposits, Quaternary sand, Quaternary alluvium) assigned Class 4-High sensitivity under the BLM PYFC. A sixth

Class-4 High sensitivity unit, Quaternary-Tertiary playa deposits, may be present at depth. Overall, Alternative E is the most sensitive of all of the gen-tie alternatives. As of January 2012 only BLM owned land along Alternative E had been surveyed for paleontological resources. This survey identified five fossil localities in Quaternary lake deposits. The species identified here include: tortoise, rodent, rabbit, and bird.

#### *Construction*

##### *Direct Effects*

The magnitude of direct effects resulting from the construction of Alternative E would be the same as those discussed under Alternative B and D (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MMs PAL-1 through PAL-7, as described above, would minimize potential effects.

##### *Indirect Effects*

The magnitude of indirect effects resulting from the construction of Alternative E would be the same as those discussed under Alternative B and D (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MM PAL-4, as described above, would minimize potential effects.

#### *Operation and Maintenance*

##### *Direct Effects*

No direct impacts to paleontological resources associated with operation and maintenance would occur for Alternative E.

##### *Indirect Effects*

The indirect effects resulting from the operation and maintenance of Alternative E would be the same as those discussed under Alternative B (fossil collection by visitors). No mitigation is warranted.

#### *Decommissioning*

##### *Direct Effects*

The magnitude of direct effects resulting from decommissioning of Alternative E would be the same as those discussed under Alternative B and D (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MMs PAL-1 through PAL-7 would minimize potential effects.

##### *Indirect Effects*

The magnitude of indirect effects resulting from decommissioning of Alternative E would be the same as those discussed under Alternative B and D (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MM PAL-4 would minimize potential effects.

### *Mitigation Measures*

The mitigation measures MM PAL-1 through MM PAL-7, as described above, would reduce adverse project effects related to paleontology.

### *Residual Impacts and Unavoidable Adverse Effects*

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative E would occur.

## 4.7.15 Cumulative Effects

This section evaluates the potential for DHSP, and other development projects within the vicinity of DHSP, to have cumulative impacts to paleontological resources. Paleontological effects of multiple ground-disturbing projects have the potential to be cumulatively additive. Individually minor but collectively important actions, usually in the form of ground disturbance, may have a substantial adverse cumulative effect on paleontological resources.

### *Geographic Scope*

The geographic extent for cumulative impacts analysis is limited to the immediate region of the physical disturbance associated with the DHSP and other projects within the I-10 corridor.

**Table 4.7-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Paleontology | Within the I-10 corridor between Desert Center and Blythe | Ground disturbance | All projects listed in Table 4.1-1 and 4.1-2 |

### *Cumulative Effects Analysis*

Paleontologic resources have been documented in the general area of the DHSP, and significant fossils are likely to continue to be unearthed during construction of Alternatives 4 through 7 and C through E plus the other major ongoing and foreseeable solar and energy infrastructure projects along the Interstate-10 corridor (Section 3.16). For the DHSP, MMs PAL-1 through MM PAL-7 and similar monitoring, curation, and reporting measures being required and implemented on other major infrastructure projects would minimize cumulative impacts to paleontological resources. It is anticipated that other foreseeable projects will follow similar procedures. Overall, if significant fossils are uncovered and appropriately documented and curated during construction of these major infrastructure projects, there could be an overall net gain to the science of paleontology by allowing fossils that would not otherwise have been found to be recovered, identified, studied, and preserved.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Under the cumulative scenario for Alternative B, which considers that the DSSF gen-tie is constructed and the DHSP gen-tie is located on shared poles with no additional ground disturbance, the DHSP gen-tie would result in no net cumulative impacts on paleontological resources in combination with the reasonably foreseeable DSSP gen-tie line. Alternative B would not contribute to cumulative effects.

### 4.7.16 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

The principal measure of effect on paleontological resources is the presence or potential presence of these resources in areas where ground disturbance would occur.

***CEQA Significance Criteria***

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to paleontological resources. The proposed project or alternatives would result in a significant impact related to paleontological resources if they would:

PAL-1 Damage or destroy fossils or other unique paleontological resources;

PAL-2 Directly or indirectly destroy a unique geologic feature associated with paleontological resources; or

PAL-3 Cause the loss of valuable scientific information by disturbing the geology in which fossils are found.

Significant impacts would result from actions where these impacts could not be mitigated by collection prior to and during disturbance or by avoidance.

***CEQA Significance Determination***

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no ground disturbance. No significant impacts to paleontological resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to paleontological resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to paleontological resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

**Alternative 4.** Under Alternative 4, the Applicant's proposed solar facility, the direct and indirect impacts of project construction, operation, and decommissioning to paleontological resources as described in Section 4.7.5, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative 5.** Under Alternative 5 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.6, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative 6.** Under Alternative 6 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.7, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative 7.** Under Alternative 7 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.7, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative A.** Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW, and that impacts to vegetation resources would be as described in the Desert Sunlight EIS (BLM 2011). No significant impacts to paleontological resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact.

**Alternative B.** Under Alternative B, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.9, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative C.** Under Alternative C, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.10, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by:

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative D.** Under Alternative D, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.11, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

**Alternative E.** Under Alternative E, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.12, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-7, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

# Section 4.8

## Fire and Fuels Management

## 4.8 FIRE AND FUELS MANAGEMENT

### 4.8.1 Methodology for Analysis

Baseline conditions for the effects analysis presented in this section were established in Section 3.8. To evaluate effects related to fire and fuels management within the project study area, the California Department of Forestry and Fire Protection (CAL FIRE) maps and datasets on statewide Fire Hazard Severity Zones (FHSZ), aerial photographs, and site reconnaissance documenting vegetation conditions were all used to determine wildfire risk in the vicinity of the solar facility site. Published literature on fire behavior and indirect effects on natural resources was reviewed to assess potential indirect effects. The County of Riverside General Plan was reviewed for requirements for emergency response plans, hazard management plans, and wildfire potential.

### 4.8.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.8.6, as appropriate, to minimize impacts to fire and fuels management to the extent feasible. Mitigation measures encompass the substance and intent of the AMs, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures required for fire and fuels management impacts and the following AMs, the mitigation measures take precedence.

**AM HAZ-7** **Fire protection measures shall be implemented**. Project facilities will be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health and safety requirements. In compliance with County of Riverside requirements, a project-specific fire prevention plan for both construction and operation of the Solar Farm and Gen-Tie Line will be completed prior to initiation of construction. The fire protection plan will be approved by the BLM and provided to Riverside County for review and comment.

**AM HAZ-8** **Fire Prevention Plan.** A project-specific fire prevention plan will be in place during construction, operation and decommissioning of the project. This plan will comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park.

**AM HAZ-9** **Emergency Response Plan.** An emergency response plan and site security plan will be completed for the project facilities by qualified professionals. These plans will be developed in accordance with the BLM requirements.

### 4.8.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. No solar energy project would be constructed on the project site and

BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects caused by project-related wildfires to people and the environment would not occur.

### 4.8.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.8.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.8.6 Alternative 4 – Proposed Solar Project

#### ***Construction***

#### *Direct Effects*

Alternative 4 would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire (Riverside County 2003). Construction of Alternative 4 would increase the potential for a wildfire and could impact the public and environment by exposure to wildfire due to construction activities and ground disturbance. The risk of wildfire would be related to combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment or hazardous materials off paved roadways. A project-related fire could escape initial containment and pose a hazard to life and property for project personnel and nearby landowners. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures MM-FIRE-1 (a project-specific Fire Prevention Plan), MM-PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM-PHS-5 and MM-PHS-7 is in Section 4.13 (Public Health and Safety).

#### *Indirect Effects*

Construction of Alternative 4 could introduce non-native plants to the solar facility landscape. Because they dry out earlier in the season and interconnect otherwise patchy native desert plants, non-native plant invasions can result in a landscape's increased susceptibility to wildfire and increased fire frequency beyond what is normal under natural conditions. Construction of Alternative 4 could, therefore, indirectly result in increased fire frequency in the desert environment, putting nearby residents, structures, personnel, and native habitats at risk of harm from wildfire. To reduce the risk of invasion of non-native plants, and to control any introductions of non-native species on an ongoing basis, Mitigation Measure MM-VEG-9 (an Integrated Weed Management Plan) would be implemented. Alternative 4 could also indirectly increase wildfire spread because restricting access to the solar facility site could impede fire-fighting efforts. To reduce risks related to restricted site access, MM-FIRE-1 (a project-specific Fire Prevention Plan), which includes 24-hour site access for fire agencies and a wildfire traffic management plan, would be implemented. However, restricted site access could indirectly decrease the risk of fire ignitions from arson, campfires, and smoking.

### *Operation and Maintenance*

#### *Direct Effects*

During operation of Alternative 4, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to ongoing operation and maintenance activities. The risk of wildfire would be related to the combustion of native plants caused by smoking and refueling. No vehicles would be used off road. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures MM-FIRE-1 (a project-specific Fire Prevention Plan),MM-PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM-PHS-5 and MM-PHS-7 is in Section 4.13 (Public Health and Safety).

#### *Indirect Effects*

Indirect effects of operating and maintaining Alternative 4 on wildfire would be similar to those described for construction. The effects related to non-native species introduction would be reduced given the smaller workforce and decreased activity level (compared to construction) required for operation and maintenance.

### *Decommissioning*

#### *Direct Effects*

During the decommissioning activities of Alternative 4, there would be an increased potential for a wildfire that could impact the public and environment. The risk of wildfire would be related to the combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment off road. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures MM-FIRE-1 (a project-specific Fire Prevention Plan),MM PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM-PHS-5 and MM-PHS-7 is in Section 4.13 (Public Health and Safety).

### *Indirect Effects*

Indirect effects of operating and maintaining Alternative 4 would be the same as those described for construction.

### *Mitigation Measures*

The following mitigation measure would reduce indirect effects related to wildfire risk.

**MM FIRE 1 A project-specific Fire Prevention Plan shall be developed and implemented.** This Plan shall comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park. The Plan shall be developed for construction, operations/maintenance, and decommissioning activities.

The following steps shall be taken to identify and control fires and similar emergencies.

1. **Wildfire traffic control and site access**. The Applicant shall develop a wildfire traffic control plan. The plan shall provide mechanisms for keeping roads passable for emergency service providers in a wildfire or other emergency situation. The traffic control plan shall identify strategic locations for adequate construction and maintenance vehicle parking, as necessary, in consultation with BLM. Alternative routes for large equipment and vehicle evacuation shall be identified to the extent possible. The plan shall provide specifications, including GIS data, for a network of access roads to be constructed for adequate fire control and emergency vehicle access to the site. Local fire agencies shall have 24-hour access to the solar farm site.
2. **Minimize fire risk by removing vegetation**. Electrical equipment that is part of the project would only be energized after the necessary inspections and approval to ensure minimal risk of any electrical fire during construction. Measures to minimize fire risk shall include removal of dry vegetation and/or other combustible materials within 30 feet of any hazardous material storage, compressed gas storage, or equipment/vehicle that has the potential to spark a fire. Cleared dead and decaying vegetation shall be removed.
3. **Use of non-flammable coolant for transformers**. Transformers located on site shall be equipped with non-toxic mineral-oil based coolant that is non-flammable, biodegradable and contains no polychlorinated biphenyls or other toxic compounds.
4. **Halt construction during "severe fire weather."** Construction activities shall be halted during "severe fire weather" as defined by the local CAL FIRE office.
5. **Blasting plan must be approved before any project-related blasting**. No blasting shall occur without submission and approval of a blasting plan. Plan shall be approved by BLM, CAL FIRE, and local fire agency before the start of ground disturbance.

6. **Prevent conflicts with aerial fire-fighting.** All new overhead structures introduced by gen-tie lines shall be mapped and maps and GIS data shall be provided to fire agencies to prevent conflicts with aerial fire-fighting. Construction contractor and project operator shall also coordinate with fire agencies to reduce potential conflicts.
7. **Crew members shall monitor for fire risks and immediately report fires and fire risks.** All construction/maintenance/decommissioning crews and inspectors shall be provided with radio and cellular telephone access that is operational throughout the entire approved solar farm site and gen-tie line route to allow for immediate reporting of fires. Communications equipment shall be tested and confirmed as operational each day prior to initiating construction or maintenance activities. All fires shall be reported to fire agencies, both CAL FIRE and BLM, immediately. Each crew member shall carry at all times a laminated card listed pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts, including appropriate fire suppression measures. Project staff shall monitor fire risks during construction and operation to ensure that prompt measures are taken to mitigate identified risks. The Applicant staff vehicles shall be equipped with fire extinguishers.

**MM-PHS-5** **A project-specific Emergency Response and Inventory Plan shall be prepared** [full text of measure in Section 4.13]

**MM PHS-7** **Develop and implement fire services agreement with Riverside County Fire Department and BLM.** [full text of measure in Section 4.13]

**MM-VEG-9** **Prepare and implement an Integrated Weed Management Plan.** [full text of measure in Section 4.3]

#### *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative 4 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

### 4.8.7 Alternative 5 – Solar Project Excluding WHMA

#### *Construction*

#### *Direct Effects*

Because Alternative 5 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 5 would be nearly identical to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects during construction of Alternative 5 on wildfire would be nearly identical to those described in Alternative 4.

### *Operation and Maintenance*

#### *Direct Effects*

Because Alternative 5 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 5 would be similar to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 5 would be similar to those described in Alternative 4.

### *Decommissioning*

#### *Direct Effects*

Because Alternative 5 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 5 would be similar to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 5 would be similar to those described in Alternative 4.

### *Mitigation Measures*

The same mitigation measures would apply to Alternative 5 as would apply to Alternative 4.

### *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative 5 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.8 Alternative 6 – Reduced Footprint Solar Project

### *Construction*

#### *Direct Effects*

Because Alternative 6 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 6 would be nearly identical to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects during construction of Alternative 6 on wildfire would be nearly identical to those described in Alternative 4.

### ***Operation and Maintenance***

#### *Direct Effects*

Because Alternative 6 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 6 would be similar to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 6 would be nearly identical to those described in Alternative 4.

### ***Decommissioning***

#### *Direct Effects*

Because Alternative 6 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 6 would be nearly identical to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 6 would be similar to those described in Alternative 4.

### ***Mitigation Measures***

The same mitigation measures would apply to Alternative 6 as would apply to Alternative 4.

### ***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative 6 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

### ***Construction***

#### *Direct Effects*

Because Alternative 7 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 7 would be nearly identical to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects during construction of Alternative 7 on wildfire would be nearly identical to those described in Alternative 4.

### ***Operation and Maintenance***

#### *Direct Effects*

Because Alternative 7 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 7 would be similar to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 7 would be nearly identical to those described in Alternative 4.

### ***Decommissioning***

#### *Direct Effects*

Because Alternative 7 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 7 would be nearly identical to those described for Alternative 4.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative 7 would be similar to those described in Alternative 4.

### ***Mitigation Measures***

The same mitigation measures would apply to Alternative 7 as would apply to Alternative 4.

### ***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative 7 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused by project-related wildfires to people and the environment would not occur.

### 4.8.11 Alternative B – Proposed Gen-Tie (Shared Towers)

***Construction***

*Direct Effects*

Like Alternatives 4 through 7, Alternative B would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. Direct effects of construction would be similar to those described in Alternative 4. These effects would be reduced because of the smaller workforce, reduced equipment requirements, and smaller area of disturbance. These effects would be reduced by MM-PHS-5 (a project-specific Emergency Response and Inventory Plan).

*Indirect Effects*

Construction of Alternative B could introduce non-native plants to the gen-tie line landscape. The indirect effects of construction of Alternative B would be similar to those described in Alternative 4 but reduced because of the smaller workforce, fewer equipment requirements, and smaller area of disturbance. Because Alternative B would introduce new overhead structures, this alternative could cause potential conflicts with aerial fire-fighting. MM-VEG-9 (Integrated Weed Management Plan) would be implemented to reduce effects related to non-native plants.

***Operation and Maintenance***

*Direct Effects*

During operation of Alternative B, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to ongoing operation and maintenance activities. The risk of wildfire would be related to the combustion of native plants caused by vehicles, equipment, or hazardous materials. No vehicles would be used off road during operations. These effects would be reduced compared to those described in Alternative 4 given the smaller workforce and area required to operate and maintain Alternative B. Mitigation MM-PHS-5 (a project-specific Emergency Response and Inventory Plan) would be implemented to reduce effects.

*Indirect Effects*

Indirect effects of operating and maintaining Alternative B on wildfire would be similar to those described for construction. These effects would be largely reduced given the smaller workforce and equipment requirements of operation and maintenance.

***Decommissioning***

*Direct Effects*

Because of the similarity in workforce and equipment requirements, direct effects of decommissioning Alternative B would be nearly identical to those described for construction.

*Indirect Effects*

Indirect effects of decommissioning Alternative B would be nearly identical to those described for construction.

***Mitigation Measures***

The same mitigation measures would apply to Alternative B as apply to Alternative 4.

***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative B would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

### 4.8.12 Alternative C – Separate Transmission Towers within Same ROW

***Construction***

*Direct Effects*

Because Alternative C would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative C would be nearly identical to those described for Alternative B.

*Indirect Effects*

The indirect effects during construction of Alternative C on wildfire would be nearly identical to those described in Alternative B.

***Operation and Maintenance***

*Direct Effects*

Because Alternative C would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative C would be identical to those described for Alternative B.

*Indirect Effects*

The indirect effects of operating and maintaining Alternative C would be identical to those described in Alternative B.

***Decommissioning***

*Direct Effects*

Because Alternative C would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative C would be identical to those described for Alternative B.

### *Indirect Effects*

The indirect effects of operating and maintaining Alternative C would be identical to those described in Alternative B.

### ***Mitigation Measures***

The same mitigation measures would apply to Alternative C as apply to Alternative 4.

### ***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative C would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.13 Alternative D – Cross-Valley Alignment

### ***Construction***

### *Direct Effects*

Because Alternative D would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative D would be nearly identical to those described for Alternative B.

### *Indirect Effects*

The indirect effects during construction of Alternative D on wildfire would be nearly identical to those described in Alternative B. However, this alternative would not have the same indirect effects related to introducing new overhead structures.

### ***Operation and Maintenance***

### *Direct Effects*

Because Alternative D would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative D would be identical to those described for Alternative B.

### *Indirect Effects*

The indirect effects of operating and maintaining Alternative D would be identical to those described in Alternative B.

### ***Decommissioning***

### *Direct Effects*

Because Alternative D would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative D would be identical to those described for Alternative B.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative D would be identical to those described in Alternative B.

### *Mitigation Measures*

The same mitigation measures would apply to Alternative D as apply to Alternative 4.

### *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative D would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.14 Alternative E – New Cross-Valley Alignment

### *Construction*

#### *Direct Effects*

Because Alternative E would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative E would be nearly identical to those described for Alternative B.

#### *Indirect Effects*

The indirect effects during construction of Alternative E on wildfire would be nearly identical to those described in Alternative B.

### *Operation and Maintenance*

#### *Direct Effects*

Because Alternative E would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative E would be identical to those described for Alternative B.

#### *Indirect Effects*

The indirect effects of operating and maintaining Alternative E would be identical to those described in Alternative B.

### *Decommissioning*

#### *Direct Effects*

Because Alternative E would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative E would be identical to those described for Alternative B.

### *Indirect Effects*

The indirect effects of operating and maintaining Alternative E would be identical to those described in Alternative B.

### *Mitigation Measures*

The same mitigation measures would apply to Alternative E as apply to Alternative 4.

### *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative E would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

## 4.8.15 Cumulative Effects

### *Geographic Scope*

The geographic area considered for cumulative effects on fire and fuels management is within the I-10 corridor from Indio to Blythe, California for emergency response purposes and within a one-mile radius of the proposed project and alternatives. A cumulative fire effect would occur if multiple projects were to increase the frequency of fires in the same location or if the fires could potentially spread to the same areas. The existing and reasonably foreseeable projects listed in Tables 4.1-1 and 4.1-2 (see Section 4.1.4, Introduction, Cumulative Scenario Approach) could combine to create cumulative effects to emergency response. The projects listed below in Table 4.8-1 could combine with the DHSP to create cumulative effects to fire risk.

**Table 4.8-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Fire and Fuels Management | Within the I-10 corridor from Indio to Blythe, California for emergency response and within 1 mile of the proposed project for fire risk | Increase in fire ignitions, impacts to worker safety, emergency response, and fire protection | All projects listed in Table 4.1-1 and 4.1-2 for emergency response.<br>The following projects for fire risk:<br>• Desert Sunlight Solar Farm<br>• Chuckwalla Valley Raceway<br>• DPV1 Transmission Line<br>• Blythe Energy Project Transmission Line<br>• I-10<br>• Silverado Power Solar Project<br>• SCE Red Bluff Substation<br>• Desert Center 50 (for Alternative E)<br>• Sol Orchard<br>• DPV No.2 Transmission Line |

Most of these projects have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

The temporal scope of this cumulative analysis is considered the duration of construction, operation, and decommissioning of the proposed project or an alternative. This is because the construction, operation and maintenance, and decommissioning of the DHSP would could result in wildfire ignitions and impact emergency response time throughout the life of the project.

***Cumulative Effects Analysis***

The Desert Sunlight Solar Farm (DSSF) project and Interstate 10 are located within the cumulative study area for fire and fuels management, as are several other proposed renewable energy projects. The proposed project is scheduled to be under construction concurrently with the DSSF, and could overlap with other proposed projects pending their approval. Interstate 10 is an existing project. Construction and operation of the DSSF could result in wildfire ignitions due to the use of heavy equipment, smoking, or welding. Transmission lines may also cause wildfire ignitions if maintenance is not properly conducted, if a low-flying plane or helicopter were to crash into the line, or sometimes as a result of wildlife collisions. Ignitions from Interstate 10 could originate from drivers throwing cigarette butts out car windows.

Fire ignitions from Alternative 4 could combine with ignitions from the DSSF and from drivers on Interstate 10 to increase the frequency of fires above the baseline fire frequency. The combination of these projects being constructed concurrently could substantially increase the frequency of fire in the area above natural conditions. Worker safety, emergency response, and fire protection could all be affected if simultaneous emergency response to multiple locations is required. Although the chances that two or more alternative energy facilities would require emergency response simultaneously may be low, a response to one distant site could impede or preclude a simultaneous response to another facility, residential or commercial location, or other location in demand.

In light of the similarities in their components and construction requirements, the fire and fuels management cumulative impacts for Alternatives 5, 6, and 7 would be essentially the same as described for Alternative 4 and would not be cumulatively considerable. Alternatives C through E would be largely the same as one another, and an overall cumulative increase in fire frequency could be substantial in the Chuckwalla Valley as a result of large-scale development of an open-space desert area. With implementation of MM-FIRE-1 (a project-specific Fire Prevention Plan), which would ensure personnel are trained in emergency firefighting techniques, and that fire-protection equipment is available at the Desert Harvest project site, the incremental increase in wildfire frequency and demands on emergency services of Alternatives C through E would be minimal. With mitigation measures required for Alternatives C through E, the contribution of these alternatives to this cumulative effect would be minimized, and similarly, the extensive fire-safe mitigation measures required for the DSSF project and any approved solar project would minimize fire ignitions from these sources.

There would be no cumulative fire and fuels management impacts under the No Action Alternatives 1, 2, 3, and A because there would be no ROW grant for development of the project and associated facilities. There would also be no cumulative fire and fuel management impacts under Alternative B, because the Desert Harvest gen-tie line would be located on shared poles of the reasonably foreseeable DSSF. The incremental effects of the Desert Harvest gen-tie under alternative B would be negligible when combined with those of the DSSP gen-tie.

### 4.8.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

*CEQA Significance Criteria*

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to fire and fuels management. The proposed project and alternatives would result in a significant impact related to fire and fuels management if they would:

Fire-1 Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

*CEQA Significance Determination*

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts caused by project-related wildfires to people and the environment would not occur.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 4.** During construction, operation and maintenance, and decommissioning of Alternative 4, risk of wildfires would be increased by combustion of native materials, smoking, and refueling and operating vehicles and other equipment and hazardous materials off road (CEQA significance criterion Fire-1). MM-FIRE-1 (a project-specific Fire Prevention Plan) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. MM-PHS-5 (a project-specific Emergency Response and Inventory Plan) and MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM) provide additional requirements related to emergency response. Alternative 4 could also indirectly increase wildfire risks by restricting access to the project site.

To reduce risks related to restricted site access, MM-FIRE-1 (a project-specific Fire Prevention Plan), which includes 24-hour site access for fire agencies and a wildfire traffic management plan, would be implemented.

Construction, operation, and decommissioning could also introduce non-native plants to the proposed project landscape. As described in Section 4.8.6, above, certain non-native plants tend to increase a landscape's susceptibility to wildfire, and non-native plant invasions can result in increased fire frequency beyond what is normal under native conditions, putting nearby residents, structures, personnel, and native habitats at risk of harm from wildfire and resulting in a significant impact. To reduce the risk of invasion of non-native plants, and to control any introductions of non-native species on an ongoing basis, Mitigation Measure MM-VEG-9 (Integrated Weed Management Plan) would be implemented. Therefore, with implementation of MM-VEG-9, project construction, operation, and maintenance would not expose people or structures to a significant risk of injury or loss as a result of wildfire. With the implementation of these mitigation measures, potential impacts from wildfire would be less than significant.

As described in Section 4.8.15, the effects of surrounding projects on emergency response to fire could be cumulatively substantial. The likelihood of simultaneous fires at more than one project site is low, but such a circumstance could strain local emergency response capacity. With implementation of mitigation measures to minimize weed introduction and ignition sources and to ensure personnel are trained in emergency response as described in Mitigation Measures MM FIRE-1 (a project-specific Fire Prevention Plan), MM PHS-5 (a project-specific Emergency Response and Inventory Plan), MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM), and MM VEG-9 (Integrated Weed Management Plan), the contribution of Alternative 4 to an increase in regional fire risk would not be cumulatively considerable.

**Alternative 5.** As described in Section 4.8.7 of this EIS, potential fire-related effects of Alternative 5 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

**Alternative 6.** As described in Section 4.8.8 of this EIS, potential fire-related effects of Alternative 6 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

**Alternative 7.** As described in Section 4.8.8 of this EIS, potential fire-related effects of Alternative 7 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

**Alternative A.** Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and impacts of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, impacts caused by project-related wildfires to people and the environment would not occur.

**Alternative B.** Like Alternatives 4 through 7, Alternative B would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. Direct effects of construction would be similar to those described in Alternative 4. These effects would be reduced because of the smaller workforce, reduced equipment requirements, and smaller area of disturbance. These effects would be reduced by MM-FIRE-1 (a project-specific Fire Prevention Plan),MM-PHS-5 (a project-specific Emergency Response and Inventory Plan) and MM-PHS-7 (a project-specific fire services agreement with Riverside County and BLM).

Construction of Alternative B could introduce non-native plants to the project landscape. The indirect effects of construction of Alternative B would be similar to those described in Alternative 4 but reduced because of the smaller workforce, fewer equipment requirements, and smaller area of disturbance. Because Alternative B would introduce new overhead structures, this alternative could cause potential conflicts with aerial fire-fighting. To prevent these conflicts, MM-FIRE-1 requires coordinating with and providing gen-tie line maps to local fire agencies. MM-VEG-9 (Integrated Weed Management Plan) would be implemented to reduce impacts related to non-native plants. With the implementation of these measures, impacts related to wildfire would be less than significant.

Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

**Alternative C.** As described in Section 4.8.12 of this EIS, potential fire-related effects of Alternative C would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative C and surrounding projects would be similar to those described in Alternative 4, but reduced given Alternative C's smaller scale and workforce requirements.

**Alternative D.** As described in Section 4.8.13 of this EIS, potential fire-related effects of Alternative D would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative D and surrounding projects would be similar to those described for Alternative C.

**Alternative E.** As described in Section 4.8.14 of this EIS, potential fire-related effects of Alternative D would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative E and surrounding projects would be similar to those described for Alternative C.

# Section 4.9

## Soils

## 4.9 SOILS AND GEOLOGY

### 4.9.1 Methodology for Analysis

This section describes the geologic hazards effects and effects on soil resources that would occur with the implementation of the proposed project or alternatives. The analysis evaluates the effect of construction, operation and maintenance, and decommissioning.

The potential effects related to geologic hazards were evaluated by assessing if there would be life/safety concerns or effects to proper function of the DHSP as a result of a seismic event. The potential impact associated with loss of soils due to erosion by either water or wind was also evaluated. This analysis is based on publicly available resources including journal articles and databases related to seismic hazards; technical reports prepared by the Applicant; and soil data from the National Resources Conservation Service (NRCS). This information was reviewed within the context of applicable federal, state and local regulations.

Table 4.9-1 provides an overview of acreages of temporary and permanent disturbance related to the proposed project and alternatives. The potential for seismic hazards remains unchanged by any of the alternatives proposed.

**Table 4.9-1. Comparison of Action Alternative Features Relevant to Soil Resources**

| | Solar Site Alternatives | | | | Gen-Tie Line Alternatives | | | |
|---|---|---|---|---|---|---|---|---|
| | Alt 4 | Alt 5 | Alt 6 | Alt 7 | Alt B | Alt C | Alt D | Alt E |
| Total ROW | — | — | — | — | 256 | 256 | 226 | 213 |
| Temporary Access Roads | — | — | — | — | 0 | 22.2 | 18.2 | 17.4 |
| Permanent Disturbance | 1,208 | 1,161 | 1,044 | 1,044 | 0 | 92 | 86 | 77 |

### 4.9.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.9.6, as appropriate, to minimize impacts to soils to the extent feasible. Mitigation measures encompass the substance and intent of the AMs, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures required for soils impacts and the following AMs, the mitigation measures take precedence.

**AM GEO-1** **Design Plan.** The Applicant shall include, as part of the construction design plans for the Solar Project, the mitigation measures provided by the upcoming geotechnical survey. The Applicant shall be responsible for implementing these mitigations.

**AM GEO-2** **Design Features.** The Applicant will implement the following design features to reduce effects from wind and water erosion to soils:

- Obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 2009-0009 DWQ;
- Use nonhazardous dust suppressants approved by the BLM and water on an as-needed basis to suppress wind-blown dust generated at the site during construction. Dust palliatives also would be applied between rows of solar panels for dust suppression during operation;
- Implement erosion control measures during construction; and
- Use silt fences for erosion control in the event of a storm event along neighboring properties and along the main drainage adjacent to the solar facility site.

### 4.9.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Land Use Plan of 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.9.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. No effects from the project would occur.

### 4.9.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.9.6 Alternative 4 – Proposed Solar Project

#### *Construction*

#### *Direct Effects*

Construction of Alternative 4 would require clearance (land clearing) of 1,208 acres. Development of the solar facility site is described in Section 2.4 (Alternative 4). In addition to the solar array and internal roads, other permanent land uses include the O&M facility and on-site substation. The site would be graded to clear and grub plants, followed by minimal cut and fill depths, averaging about 5 inches. No import material would be used. The site would then be compacted to allow vehicle access and equipment installation.

**Water and Wind Erosion of Soils.** As stated in Section 3.9, relict, old, or inactive dune deposits exist scattered throughout the project study area. Because of limited sand sources, the potential for wind-driven sand erosion of Alternative 4 is low (BLM 2011). Disturbance to existing cryptobiotic soil crusts and/or desert pavement on the solar facility site could result in a substantial increase in on-site wind- and waterborne soil erosion. However, these potential impacts will be addressed by a combination of project design features and mitigation measures. MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust by requiring dust control measures such as paving the main access road, stabilizing unpaved roads, watering graded material, discontinuing construction during windy conditions, limiting traffic speeds, and regulating haul materials (see Section 4.2.6 in Air Quality for full MM). To ensure that dust suppression efforts would not increase offsite erosion, AM GEO-2 (design features) identifies BMPs that would be used to ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, there would be no unavoidable adverse effects related to soil erosion associated with the construction of Alternative 4.

#### *Indirect Effects*

**Seismic and Geologic Hazards.** Alternative 4 is approximately 10 miles from the Blue Cut fault system and 29 miles from the Pinto Mountain fault zone. During construction, regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable indoor area; however, seismic events are infrequent and would not be highly likely to occur during the construction phase. Implementation of design characteristics that comply with the 2010 California Building Code (CBC) would reduce seismic effects by ensuring that occupied buildings are constructed safely to withstand seismic shaking. In addition, implementation of MM-PHS-5 (Emergency Response Plan) would ensure that emergency response is organized and coordinated at the solar facility site during construction, including in the event of a seismic or geologic hazard.

Other geologic hazards, including liquefaction, seismically induced subsidence, tsunamis, seiches and slope instability are not applicable to the construction of Alternative 4. Though groundwater levels at the solar facility site may fluctuate with precipitation, irrigation, drainage, and regional pumping from wells, groundwater is estimated to be greater than 50 feet below ground surface based on levels recorded in wells found in the area. As a result, soil susceptibility to liquefaction during a seismic event is not considered likely. Section 4.20, Water Resources, has a comprehensive analysis of groundwater effects associated with the project. As stated in Section 3.9, the project study area is within a Riverside County-designated "susceptible" subsidence zone (Riverside County 2003). Compaction of soils during construction would prevent subsidence of soils at the solar facility during a seismic event. AM GEO-1 requires the applicant to include, as part of the construction design plans for the project, any mitigation measures provided by the upcoming geotechnical survey which would include appropriate engineering design elements. The DHSP area is neither coastal nor near any large body of water; therefore, it would not be subject to tsunami or seiche.

**Sand Transport.** There are no sand dunes within the solar facility site, although there are dunes in the vicinity. Because there are no sand dunes on site, Alternative 4 would not interfere with Aeolian sand transport. Fluvial (water-borne) sand transport would also be unaffected by construction of Alternative 4, as the construction of solar panels would not impede downslope water flow through the site.

### Operation and Maintenance

#### Direct Effects

**Water and Wind Erosion of Soils.** During operation and maintenance, the potential soil erosion effects from water and wind would be minimal. Implementing AM GEO-2 (design features) at a frequency detailed in an operations and maintenance plan as approved by the BLM would reduce any potential effects from water and wind erosion. This measure would be supplemented by MM AIR-3 (control fugitive dust from unpaved roads during operation), which would increase soil stabilization and minimize wind erosion/fugitive dust. MM WAT-1 would ensure the Applicant complies with water quality permits and minimizes any water-related soil erosion.

#### Indirect Effects

**Seismic and Geologic Hazards.** The operation and maintenance of Alternative 4 would expose people and/or structures to the same seismic hazards as described for construction. However, the implementation of an Emergency Response and Inventory Plan (MM-PHS-5) would minimize these potential effects.

**Sand Transport.** The operation and maintenance of the project would not interfere with Aeolian sand transport or with water-borne sand transport.

### Decommissioning

#### Direct Effects

**Water and Wind Erosion of Soils.** During decommissioning of Alternative 4, the potential soil erosion effects from water and wind would be expected to be similar to those described for construction as similar types of equipment and activities would be required. Implementing AM GEO-2 (Design Features) as detailed in an operations and maintenance plan as approved by the BLM would reduce any potential effects from water and wind erosion. This measure would be supplemented by MM AIR-1 (Fugitive Dust Control Plan), which would increase soil stabilization and minimize wind erosion/fugitive dust. MM WAT-1 would ensure the Applicant complies with water quality permits and minimizes any water-related soil erosion.

*Indirect Effects*

**Seismic and Geologic Hazards.** The decommissioning of Alternative 4 would have similar effects as construction. Facilities would be removed and land reclaimed. Decommissioning of Alternative 4 would expose people and/or structures to the same effects as during construction. Implementing MM-PHS-5 would minimize these potential effects. After decommissioning, facilities would be removed and land reclaimed, bringing an end to seismic related risk from this alternative.

**Sand Transport.** Decommissioning Alternative 4 would not interfere with Aeolian sand transport or with water-borne sand transport.

***Mitigation Measures***

The following mitigation measures are required for Alternative 4.

| | |
|---|---|
| **MM AIR-1** | **The Applicant shall develop a Fugitive Dust Control Plan in compliance with SCAQMD Rule 403 to reduce PM10 and PM2.5 emissions during construction** (full text in Section 4.2 [Air Resources]) |
| **MM AIR-3** | **The Applicant shall control fugitive dust from the unpaved roads on the site during operation** (full text in Section 4.2 [Air Resources]) |
| **MM WAT-1** | **Demonstrate compliance with water quality permits** (full text in Section 4.20 [Water Resources]) |
| **MM WAT-4** | **Stormwater Pollution Prevention Plan and Drainage Design Specifications**. (full text in Section 4.20 [Water Resources]) |
| **MM PHS -5** | **A project-specific Emergency Response and Inventory Plan shall be prepared** (full text in Section 4.13 [Public Health and Safety]) |

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 4 would not result in any unavoidable adverse effects.

### 4.9.7 Alternative 5 – Solar Project Excluding WHMA

***Construction***

Although Alternative 5 covers a slightly smaller area than Alternative 4, the direct and indirect effects of Alternative 5's construction will be the same as those described for Alternative 4.

***Operation and Maintenance***

Operation and maintenance of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Decommissioning***

Decommissioning of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Mitigation Measures***

The same mitigation measures would apply to Alternative 5 as apply to Alternative 4.

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects.

### 4.9.8 Alternative 6 – Reduced Footprint Solar Project

***Construction***

Although Alternative 6 covers a slightly smaller footprint and would revise the solar panel layouts compared with Alternative 4, the direct and indirect effects of Alternative 6's construction will be the same as those described for Alternative 4.

***Operation and Maintenance***

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Decommissioning***

Decommissioning of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Mitigation Measures***

The same mitigation measures would apply to Alternative 6 as would apply to Alternative 4.

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects.

### 4.9.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

***Construction***

Although Alternative 7 covers a slightly smaller footprint and would increase the solar panel height compared with Alternative 4, the direct and indirect effects of Alternative 7's construction will be the same as those described for Alternative 4.

***Operation and Maintenance***

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

### *Decommissioning*

Decommissioning of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

### *Mitigation Measures*

The same mitigation measures would apply to Alternative 7 as would apply to Alternative 4.

### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects.

## 4.9.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused to soils and geology and the seismic risks related to the gen-tie would not occur.

## 4.9.11 Alternative B – Proposed Gen-Tie (Shared Towers)

### *Construction*

Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project; however, the baseline for environmental effects is the existing condition of the site in September 2011. At this time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B must include all construction effects of this shared infrastructure.

Construction of Alternative B within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.8 (Alternative B).

#### *Direct Effects*

**Wind and Water Erosion of Soils.** Construction of Alternative B would require clearance of an estimated 92 acres. Permanent land use would include tower foundations and permanent access roads. Permanent roads, temporary areas around each pole location, puller and tensioner sites, and wire setup sites would be graded and cleared. As with construction of Alternative 4, grading could result in a substantial increase in on-site wind- and waterborne soil erosion. These effects would be minimized by AM GEO-2 and MM-AIR-1.

*Indirect Effects*

**Seismic and Geologic Hazards.** Alternative B is approximately 10 miles from the Blue Cut fault system and 29 miles from the Pinto Mountain fault zone. During construction, regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable indoor area; however, seismic events are infrequent and would not be highly likely to occur during the construction phase. Other geologic hazards, including liquefaction, seismically induced subsidence, tsunamis, seiches and slope instability are not applicable to the construction of Alternative B (see Section 4.9.6). AM GEO-1 requires the applicant to include, as part of the construction design plans for the solar project, any mitigation measures provided by the upcoming geotechnical survey which would include appropriate engineering design elements. In addition, implementation of MM-PHS-5 (Emergency Response Plan) would ensure that emergency response is organized and coordinated at the Alternative B site during construction, including in the event of a seismic or geologic hazard.

**Sand Transport.** The construction of Alternative B would not affect Aeolian or water-borne sand transport.

*__Operation and Maintenance__*

*Direct Effects*

**Wind and Water Erosion of Soils.** During operation and maintenance, the potential soil erosion effects would be minimal.

*Indirect Effects*

**Seismic and Geologic Hazards.** Operating and maintaining this transmission corridor would expose people and/or structures to the same seismic hazards as described for construction; however, the exposure of workers to seismic hazards would be reduced due to the limited amount of operations and maintenance expected. These effects would be minimized by the AM GEO-1 which requires a design plan that incorporates recommendations from a geotechnical survey and implementation of an Emergency Response and Inventory Plan (MM-PHS-5). .

**Sand Transport.** Alternative B is not located within the sand transport corridor.

*__Decommissioning__*

*Direct Effects*

**Wind and Water Erosion of Soils.** During decommissioning of Alternative B, the potential soil erosion effects would be minimal. These effects would be minimized by AM GEO-2 and the mitigation proposed for Alternative 4.

*Indirect Effects*

**Seismic and Geologic Hazards.** Decommissioning of Alternative B would expose people and/or structures to the same effects as during construction. These effects would be minimized by the mitigation proposed for construction. After decommissioning, facilities would be removed and land reclaimed, bringing an end to seismic related risk from this alternative.

**Sand Transport.** Alternative B is not located within the sand transport corridor.

#### *Mitigation Measures*

The same mitigation measures would apply to Alternative B as would apply to Alternative 4.

#### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

### 4.9.12 Alternative C – Separate Transmission Towers within Same ROW

#### *Construction*

Construction of Alternative C within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.9 (Alternative C).

Because they occur in the same ROW and follow parallel paths, the effects of constructing Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

#### *Operation and Maintenance*

Because they occur in the same ROW and follow parallel paths, the effects of operation and maintenance of Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

#### *Decommissioning*

Because they occur in the same ROW and follow parallel paths, the effects of decommissioning Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

#### *Mitigation Measures*

The same mitigation measures would apply to Alternative C as would apply to Alternative 4.

#### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

### 4.9.13 Alternative D – Cross-Valley Alignment

#### *Construction*

Construction of Alternative D within the 10.5-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in permanent disturbance of 86 acres along the route, as described in Section 2.10 (Alternative D).

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of construction of Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

### *Operation and Maintenance*

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of operating and maintaining Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

### *Decommissioning*

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of decommissioning Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

### *Mitigation Measures*

The same mitigation measures would apply to Alternative D as would apply to Alternative 4.

### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

## 4.9.14 Alternative E – New Cross-Valley Alignment

### *Construction*

Construction of Alternative E within the 11.5-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in permanent disturbance of 77 acres along the route, as described in Section 2.11 (Alternative E).

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of construction of Alternative E on seismic and geologic hazards as well as on erosion would be nearly identical to those discussed for Alternative B. However, Alternative E would traverse a sand-transport corridor along an approximately 1-mile segment, and construction within the sand-transport area would partially interfere with Aeolian sand transport in the area. However, this effect would be temporary and not substantially adverse given the overall magnitude of the disturbance.

### *Operation and Maintenance*

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B, with the only difference that Alternative E would traverse an approximately 1-mile segment of a sand-transport corridor. Therefore, the effects of operating and maintaining Alternative E on seismic and geologic hazards as well as on erosion would be nearly identical to those discussed for Alternative B. However, the existence of several transmission poles and access roads within the sand-transport area would partially interfere with Aeolian sand transport in the area. Because the footprint of the transmission poles would be small, the interference with Aeolian sand transport would not be substantially adverse and the sand transport would be able to travel around each transmission pole footprint. If transmission access roads were to be stabilized with aggregate or bermed, this could represent a substantial adverse change in Aeolian sand transport along the 1-mile segment of Alternative E within the sand-transport corridor. MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) in Section 4.3, Biological Resources – Vegetation, includes a requirement to compensate for impacts to windblown and stabilized sand habitat at a 5:1 ratio. This would mitigate the potential effects.

#### *Decommissioning*

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of decommissioning Alternative E on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

#### *Mitigation Measures*

The same mitigation measures would apply to Alternative E as would apply to Alternative 4, with the addition of the following:

**MM VEG-6** **Provide Off-Site Compensation for Impacts to Vegetation and Habitat.** (full text in Section 4.3, Biological Resources – Vegetation).

#### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

### 4.9.15 Cumulative Effects

#### *Geographic Scope*

The geographic area considered for cumulative effects related to soils and geologic hazards is within a 0.5-mile radius to the proposed project and alternatives for seismic events and erosion, and within the Aeolian sand transport corridor for impacts to sand transport. Tables 4.1-1 and 4.1-2 in Section 4.1.4 (Cumulative Scenario) list all existing and reasonably foreseeable projects in this area. Table 4.9-2 list the existing and foreseeable projects that would create cumulative soil or geologic effects in combination with any of the solar facility alternatives (Alternative 4 through 7) and the gen-tie line alternatives.

**Table 4.9-2. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Soils and Geology | Within 1 mile of the proposed project for seismic events and erosion, within the Aeolian sand transport corridor for sand transport | Soil, wind, and water erosion, impacts to the sand transport corridor | • Desert Sunlight Solar Farm<br>• Silverado Power Solar Project<br>• Desert Sunlight Transmission Line (Alternatives B and C)<br>• Red Bluff Substation<br>• DPV1 Transmission Line<br>• Blythe Energy Project Transmission Line<br>• I-10<br>• DPV No. 2 Transmission Line<br>• Chuckwalla Race Track (Alternative D)<br>• Desert Center II Solar Project (Alternative D)<br>• Palen Solar Power Project (Alternative E) |

The foreseeable projects that would create cumulative soil or geologic effects in combination with any of the solar field action alternatives (Alternatives 4 through 7) include the Desert Sunlight Solar Farm Project and the Silverado Power Solar Project. With respect to the gen-tie line alternatives (Alternatives B through E), Alternative C would have the potential for cumulative effects in combination with the Desert Sunlight transmission line, as Alternative C would utilize the same ROW. Alternative D would have the potential for cumulative effects in combination with the Silverado Power Solar Project, Desert Center II Solar Project, and the Chuckwalla Race Track. Alternative E would be within the Aeolian sand transport corridor along with the Palen Solar Power Project. All four gen-tie line alternatives (Alternatives B through E) could result in cumulative effects in combination with the Red Bluff Substation, I-10, and DPV1, DPV2, and the Blythe Energy Project Transmission Line. Alternative B would not have the potential to contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

The temporal scope of this cumulative analysis is considered the period within which a soils and geologic hazard of the proposed project or an alternative is actively present. Because the operation and maintenance of the DHSP would expose people and/or structures to seismic hazards, a cumulative effect could occur if another project within a 0.5-miles radius would also expose people and/or structures to seismic hazards.

### *Cumulative Effects Analysis*

Past, present, and future projects in the cumulative analysis area would all be susceptible to similar risks from seismic events. Adherence to state and local regulations related to site engineering would be required. The Alternative 4 would implement MM PHS-5 (Emergency Response Plan), and other projects would likely require similar measures. Appropriate engineering and mitigation would minimize both the incremental risk related to Alternative 4 and the overall cumulative effects. Consequently, there would be no substantial adverse cumulative effects related to seismic hazards.

Alternative 4 together with other past, present, and reasonably foreseeable projects have the potential to have adverse cumulative effects related to soil erosion. Any disturbance to surface soils could expose soils to the effects of wind and water. Activities including grading, compaction, drilling, back-filling, and driving on unpaved roadways could disturb soils at any work site, regardless of the type of project. There could potentially be cumulatively additive effects related to wind and water erosion for projects that are in very close proximity and that are undergoing ground disturbing activities at the same time, such as the DSSF and Silverado Power Project. Effects of more distant projects would not be cumulatively additive. However, the incremental effects of the proposed project would be minimal because the Applicant would be required to adhere to regulatory requirements and implement AM GEO-2, MM AIR-1, MM AIR-3, MM WAT-1, and MM WAT-4, which would minimize erosion. Similarly, other existing and reasonably foreseeable projects would be required to implement comparable erosion control measures. Wind and water erosion of soil effects are less likely during operation and maintenance of any project due to site coverage by asphalt, concrete, structures, or vegetation.

The geological and soil effects for Alternatives 5 through 7, and C through D would be essentially the same as described for the Alternative 4 and would not represent substantial adverse cumulative effects. The No Action and No Development Action Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Because Alternative E access roads would affect Aeolian sand transport, these effects would be cumulatively additive with effects the Palen Solar Power Project, which would affect Aeolian sand transport in the same sand transport corridor as Alternative E. As noted in the Palen Solar Power Project Final EIS (2010), the impacts of the project as proposed to the sand transport corridor would be regionally-significant. Although the effect of Alternative E on the Aeolian sand transport corridor would be small, it would represent a substantial adverse cumulative effect due to the additive impact of the Palen Solar Power Project as proposed.

### 4.9.16 CEQA Considerations

#### *CEQA Significance Criteria*

The proposed project and alternatives would have a significant impact on geology and soil resources if they would:

GS-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving geologic hazards;

GS-2 Allow people or structures to be subject to strong seismic shaking;

GS-3 Be subject to seismic-related ground failure including liquefaction;

GS-4 Be located where landslides could cause substantial soil erosion or the loss of topsoil or disturb any human remains including those interred outside of formal cemeteries;

GS-5 Be located on expansive soils as defined in Table 18-1B of the Uniform Building Code (1987) that is based in part on the International Building Code that would create substantial risks to life or property;

GS-6 Be located on a geologic unit or soil that is unstable, or would become unstable as a result of the project and potentially result in on-site or off-site landside, lateral spreading, subsidence, liquefaction or collapse;

GS-7 Result in the physical alteration of or damage to geologic features; or

GS-8 Result in substantial soil erosion or loss of topsoil.

For the proposed project and alternatives, the following criteria were determined to be inapplicable or to result in no impact. The determination regarding these significance criteria is discussed below and then these significance criteria are not discussed further in this section.

- Be located on a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map

No component associated with the proposed project and alternatives has been identified within an Alquist-Priolo Earthquake Fault Zone. There would be no impacts under this criterion.

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

The proposed project would require installation of a septic system for the O&M Building. However, no soils within the DHSP area have been identified as unsuitable for septic systems, and therefore there would be no impacts under this criterion.

### *CEQA Significance Determination*

Alternatives 1, 2, and A would not involve construction of the solar project or gen-tie line. These alternatives would have no impacts related to soils or geologic hazards (Criteria G-1 through G-8), and therefore there are no CEQA significance determinations for these alternatives.

#### *Alternative 4*

**Geologic Hazards.** The construction, operation and maintenance, and decommissioning of Alternative 4 in a region prone to seismic events could result in impacts to on-site workers and facilities (CEQA Significance Criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). Adverse impacts, including loss of property or injury or death, involving rupture of known earthquake faults, strong seismic ground shaking, and seismic-related ground failure would be potentially significant. Soils in the vicinity of Alternative 4 have been identified as susceptible to subsidence during a seismic event. Due to the location of Alternative 4, there would be no potential impacts related to slope instability resulting from a seismic event. With the implementation of MM-PHS-5 (Emergency Response Plan), impacts related to seismic events (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7) would be less than significant. Groundwater is found at sufficient depths that soils within the region are not likely to be subject to liquefaction during a seismic event (CEQA significance criterion GS-3); therefore, no impact would occur from liquefaction.

**Soil Erosion**. Soils at solar facility site would be susceptible to erosion, especially once soil crusts are disturbed (CEQA Significance Criteria GS-4 and GS-8). Implementation of MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust. AM GEO-2 (design features) identifies BMPs that would be used to ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, impacts related to soil erosion (CEQA Significance Criteria GS-4 and GS-8) would be less than significant.

**Cumulative Impacts**. With the implementation of mitigation, Alternative 4 would have minimal impacts related to geologic hazards and soil erosion. Therefore, Alternative 4 would not represent a considerable contribution to any cumulative impacts related to geologic hazards or soil erosion (Significance Criteria GS-1 through GS-8).

### *Alternative 5*

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 5 as for Alternative 4 as discussed in Section 4.9.7.

### *Alternative 6*

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 6 as for Alternative 4 as discussed in Section 4.9.8.

### *Alternative 7*

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 7 as for Alternative 4 as discussed in Section 4.9.8.

### *Alternative B*

**Geologic Hazards.** The construction, operation and maintenance, and decommissioning of Alternative B in a region prone to seismic events could result in impacts to on-site workers and facilities (CEQA Significance Criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). Adverse impacts, including loss of property or injury or death, involving rupture of known earthquake faults, strong seismic ground shaking, and seismic-related ground failure would be potentially significant. Soils in the vicinity of Alternative B have been identified as susceptible to subsidence during a seismic event. Due to the location of Alternative B, there would be no potential impacts related to slope instability resulting from a seismic event. With the implementation of MM-PHS-5 (Emergency Response Plan), impacts related to seismic events (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7) would be less than significant. Groundwater is found at sufficient depths that soils within the region are not likely to be subject to liquefaction during a seismic event (CEQA significance criterion GS-3); therefore, no impact would occur from liquefaction.

**Soil Erosion**. Soils at the Alternative B site would be susceptible to erosion, especially once soil crusts are disturbed (CEQA Significance Criteria GS-4 and GS-8). Implementation of MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust. AM GEO-2 (design features) identifies BMPs that would be used to ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, impacts related to soil erosion (CEQA Significance Criteria GS-4 and GS-8) would be less than significant.

**Cumulative Impacts**. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### *Alternative C*

Project-level impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative C as for Alternative B as discussed in Section 4.9.12.

With the implementation of mitigation, Alternative C would have minimal impacts related to geologic hazards and soil erosion. Therefore, the project would not represent a considerable contribution to any cumulative impacts related to geologic hazards or soil erosion (Significance Criteria GS-1 through GS-8).

### *Alternative D*

Impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative D as for Alternative C.

### *Alternative E*

Impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative E as for Alternative C as discussed in Section 4.9.14, except for impacts on Aeolian sand transport as described in Section 4.9.14. The same mitigation measures would apply as appropriate, including MM VEG-6, which would compensate for impacts to Aeolian sand transport. Impacts to the Aeolian sand transport that result from Alternative E could combine with impacts of the Palen Solar Power Project to be cumulatively significant. Implementation of MM VEG-6 will reduce the contribution of Alternative E to less than significant.

# Section 4.10

## Energy and Mineral Resources

## 4.10 ENERGY AND MINERAL RESOURCES

### 4.10.1 Methodology for Analysis

This section describes effects on energy and mineral resources from the implementation of the proposed project and alternatives. The following discussion addresses potential environmental effects related to energy and mineral resources associated with construction, operation, and decommissioning of the proposed project and alternatives. A discussion of cumulative effects related to energy and mineral resources is also included in this section. Baseline conditions for the environmental setting relevant to energy and mineral resources are presented in Section 3.10 of this EIS. Construction activities, operation and maintenance activities, and decommissioning of the proposed project or an alternative were evaluated based on their potential to affect the baseline conditions.

### 4.10.2 Applicant Measures

No Applicant Measures for energy and mineral resources have been identified for the project or alternatives.

### 4.10.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Plan of 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

In the absence of the DHSP, other power plants, both renewable and nonrenewable, may have to be constructed to serve the demand for electricity and to meet the California Renewables Portfolio Standard (RPS). Existing gas-fired plants may operate longer in order to meet the demand for energy. The impacts of these other facilities may be similar to those of the proposed solar facility because they require land areas comparable in size and environmental impacts comparable in degree to those required for the DHSP, whether for energy production or fuel extraction. Additionally, the environmental impacts of developing transmission capacity for such other power plants may be greater, especially where no transmission capacity exists or where energy production cannot be geographically concentrated to minimize the number of new transmission lines needed.

If the proposed solar facility were not built, California utilities would not receive the 150 MW contribution to the renewable state-mandated energy portfolio. SB X1-2 expressly applies the new 33 percent RPS by December 31, 2020 to all retail sellers. It also establishes standards for interim years of: an average of 20 percent from 2011 through 2013, a minimum of 20 percent thereafter through 2016, and a minimum of 25 percent by December 31, 2016. This codifies the requirement to achieve 33 percent RPS statewide by the end of 2020, a key element of the 2008 AB 32 Scoping Plan (CARB 2008). To meet these requirements, the investor-owned utilities (IOUs) will have to almost triple their annual renewable energy procurement, from 33 terawatt-hours (TWh) in 2010 to 87 TWh by 2020. The project is expected to generate at least 300,000 MWh of renewable energy annually over its lifetime, a small but significant portion of the necessary new generation. Under the No Action Alternative, California would not benefit from the reduction in greenhouse gases that the project is expected to facilitate. It is conceivable that the achievement of California's RPS requirements could be further delayed, but because a number of other solar PV facilities are currently proposed and under construction, such a delay is not anticipated.

### 4.10.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.10.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.10.6 Alternative 4 – Proposed Solar Project

Section 3.10 of this EIS indicates that no oil, gas, or geothermal fields or active mineral claims are located on the solar facility site. Table 3.10-2 (Mineral Resources in the project area) indicates that the Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), has record of 3 "past producers" of mineral resources (gold, sand/gravel, and talc-soapstone, respectively) located within 5 miles of the solar facility site. There are no known locatable or salable mineral resources within the solar facility site, and no current producers of energy or mineral resources within 5 miles of the solar facility site.

#### *Construction*

Direct and indirect effects to energy and mineral resources resulting from Alternative 4 construction, as discussed below, include those effects which are caused by the action and occur at the same time and place (direct) and those effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (indirect).

#### *Direct Effects*

USGS identifies three mineral resource operations within five miles of Alternative 4 (Table 3.10-1), but none of the mines are active. No existing operations or mines are located on the solar facility site. Therefore, access to currently active mineral resource operations would not be affected by construction of Alternative 4.

Section 2.4.3 (Structures and Facilities) and Table 3.10-3 (Mineral Resources Contained in Project Construction Materials) of this EIS describe that a source(s) of sand and gravel would be required during proposed project construction. Table 3.10-3 also identifies that a source(s) of metallic and non-metallic minerals would be required to produce steel and aluminum for project components, including the transformer, switchyard, transmission line, and PV panels. Appropriate source(s) of sand and gravel in proximity to the solar facility site would be identified by a construction contractor and permitted through the BLM. Sand and gravel resources are common in the project study area, and construction of Alternative 4 would not substantially affect the supply of these minerals. Metallic and non-metallic resources associated with project components would be procured by the manufacturer(s) of such components, and use of these resources would not substantially affect supply of these materials.

Construction of Alternative 4 would also require the use of energy resources in the form of fuel for vehicles and equipment. Energy resources for construction vehicles and equipment are readily available in the project study area, and the consumption of such resources during construction would not constitute a substantial effect.

The proposed solar facility is located in the Draft Solar Programmatic EIS-designated proposed Solar Energy Zone or SEZ (the Riverside East SEZ). The Programmatic EIS is evaluating the BLM's proposed actions to establish a new BLM Solar Energy Program applicable to utility-scale solar energy development on BLM-administered lands in six southwestern states (including California). Therefore the use of the solar facility site for solar energy generation would be consistent with the Solar Energy Zone.

### *Indirect Effects*

Development of Alternative 4 would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land. Construction of Alternative 4 would not permanently preclude the availability of the solar facility site for exploration, extraction, and transport of mineral resources. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resources and would persist for a significant duration, the expected 30-year life of the project.

## ***Operation and Maintenance***

### *Direct Effects*

Operation and maintenance activities would include the upkeep of internal access roads, and new gravel may be occasionally applied to ensure the integrity of road surfaces. It is anticipated that the same gravel source(s) used for construction of Alternative 4 would be used during the operation and maintenance phase. As described above, the source(s) of gravel during construction would be identified by a construction contractor and permitted through the BLM. The quantity of aggregate needed for operation and maintenance of Alternative 4would be far less than that needed for construction, and would not substantially affect the supply of these materials.

Metallic and/or non-metallic resources may also be required during operation and maintenance of the project, if certain facilities or infrastructure require replacement. In addition, energy resources in the form of fuel for operational vehicles and equipment would be required. The quantity of these resources needed for operation and maintenance of the project would be far less than would be needed for construction, and the use of these resources would not substantially affect regional supplies.

Access to currently active mineral resource operations would not be affected by operations and maintenance of Alternative 4.

#### *Indirect Effects*

Development of Alternative 4 would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land. Operation and maintenance of Alternative 4 would not permanently preclude the availability of the solar facility site for exploration, extraction, and transport of mineral resources. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resources and would persist for a significant duration, the expected 30-year life of the project.

### ***Decommissioning***

#### *Direct Effects*

Decommissioning Alternative 4 would not require a source of mineral resources. Energy resources in the form of fuel for decommissioning vehicles and equipment would be required; however, these resources are readily available in the project study area, and the consumption of such resources during decommissioning would not constitute a substantial effect. Decommissioning Alternative 4 would not directly interfere with any active energy or mining operations, and would not substantially affect supplies of energy or mineral resources.

#### *Indirect Effects*

Decommissioning Alternative 4would not result in any indirect effects to energy or mineral resources.

### ***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of Alternative 4 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

### ***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 4 would not result in any unavoidable adverse effects.

## 4.10.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed in the same location as Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA).

### ***Construction***

Excluding the WHMA from development under Alternative 5 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 5 on energy and mineral resources relative to Alternative 4 and therefore the effects of Alternative 5 would be substantially similar to Alternative 4.

***Operation and Maintenance***

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 5 would be the same as described in Section 4.10.6 for Alternative 4.

***Decommissioning***

Potential effects to energy and mineral resources associated with decommissioning of Alternative 5 would be the same as described in Section 4.10.6 for Alternative 4.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of Alternative 5 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects to energy and mineral resources.

### 4.10.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would be constructed in the same location as Alternative 4, but would exclude the 155-acre southern parcel of Alternative 4 and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

***Construction***

Because of its smaller footprint, Alternative 6 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 6 on energy and mineral resources relative to Alternative 4, and therefore the effects of Alternative 6 would be substantially the same as Alternative 4.

***Operation and Maintenance***

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 6 would be the same as described in Section 4.10.6 for Alternative 4.

***Decommissioning***

Potential effects to energy and mineral resources associated with decommissioning of Alternative 6 would be the same as described in Section 4.10.6 for Alternative 4.

#### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative 6 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

#### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects to energy and mineral resources.

### 4.10.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

#### *Construction*

Because of its smaller footprint, Alternative 7 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 7 on energy and mineral resources relative to Alternative 4, and therefore the effects of Alternative 7 would be substantially the same as Alternative 4.

#### *Operation and Maintenance*

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 7 would be the same as described in Section 4.10.6 for Alternative 4.

#### *Decommissioning*

Potential effects to energy and mineral resources associated with decommissioning of Alternative 7 would be the same as described in Section 4.10.6 for Alternative 4.

#### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative 7 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

#### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects to energy and mineral resources.

### 4.10.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no energy and mineral resources effects related to construction, operations and maintenance, or decommissioning would occur.

***Mitigation Measures***

No mitigation measures for energy and mineral resources are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No energy or mineral resources effects would result from the implementation of Alternative A.

### 4.10.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm (DSSF) project by sharing the approved transmission towers. However, the baseline for environmental effects is the existing condition of the site in September 2011. At that time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B includes all construction effects of this shared infrastructure.

***Construction***

*Direct Effects*

USGS identifies three mineral resource operations within five miles of project study area (Table 3.10-1). One of the mines is adjacent to Alternative B, but none of the mines is active. Therefore, access to currently active mineral resource operations would not be affected by construction of Alternative B.

Source(s) of energy and mineral resources would be required during construction of Alternative B due to infrastructure associated with transmission towers and the need to use construction vehicles and equipment. Appropriate source(s) of sand and gravel in proximity to the Alternative B site would be identified by a construction contractor and permitted through the BLM. Sand and gravel resources are common in the area, and construction of Alternative B would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site. Construction of Alternative B would not directly interfere with any active energy or mining operations, and would not substantially affect supplies of energy or mineral resources.

*Indirect Effects*

Development of Alternative B would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land and would not permanently preclude the availability of the gen-tie line alignment for exploration, extraction, and transport of mineral resources.

***Operation and Maintenance***

Operation and maintenance of Alternative B may include repair or replacement of the gen-tie line, as necessary, and such activities could potentially require a source of energy resources for fuel associated with vehicles and equipment, and a source of mineral resources associated with the repair or replacement of project features. If needed, it is anticipated that the same source(s) of energy and mineral resources used for construction of Alternative B would be used during the operation and maintenance phase. Operation and maintenance of Alternative B would not result in the loss of availability of an active mineral recovery operation or substantially affect supplies of mineral or energy resources.

***Indirect Effects***

Development of Alternative B would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land and would not permanently preclude the availability of the gen-tie line alignment for exploration, extraction, and transport of mineral resources.

***Decommissioning***

Decommissioning of Alternative B would not require a source of mineral resources. Energy resources in the form of fuel for decommissioning vehicles and equipment would be required; however, energy demands associated with decommissioning are readily available in the project study area, and the consumption of such resources during decommissioning would not constitute a substantial effect. Decommissioning of Alternative B would not directly interfere with any active mining operations and would not constitute a substantial effect on regional energy or mineral supplies.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of Alternative B would not result in substantial adverse direct or indirect effects to energy and mineral resources such that mitigation measures are required. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

### 4.10.12 Alternative C –Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved DSSF gen-tie line, and would be located on separate towers within the DSSF ROW. The same number of towers in a nearly identical alignment to that of the DSSF gen-tie line would be constructed, and potential effects to energy and mineral resources associated with the Alternative C gen-tie line would be the same as potential effects to energy and mineral resources associated with the DSSF gen-tie line.

***Construction***

The effects of the construction of Alternative C would be the same as those of Alternative B.

***Operation and Maintenance***

The effects of operations and maintenance of Alternative C would be the same as those of Alternative B.

***Decommissioning***

The effects of decommissioning of Alternative C would be the same as those of Alternative B.

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative C would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

## 4.10.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternatives B and C, except it would require slightly less temporary and permanent ground disturbance.

### *Construction*

The effects of the construction of Alternative D would be the same as those of Alternative B.

### *Operation and Maintenance*

Effects of operations and maintenance of Alternative D would be the same as for Alternative B.

### *Decommissioning*

Effects of decommissioning of Alternative D would be the same as for Alternative B.

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative D would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

## 4.10.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be essentially the same as described for Alternative B, though permanent ground disturbance would be slightly reduced.

### *Construction*

Effects would be the same for Alternative E as described above for Alternative D.

### *Operation and Maintenance*

Effects would be the same as described for Alternative B.

***Decommissioning***

Effects would be the same as described for Alternative B.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of Alternative E would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

### 4.10.15 Cumulative Effects

Cumulative effects to energy and mineral resources can result from individually minor but collectively significant actions taken over time. Major past, present, and reasonably anticipated future projects in the area have been identified in Section 4.1.4 (Cumulative Scenario) of this EIS, and include energy generation, military uses, commercial and residential developments, and roadway improvements.

***Geographic Scope***

The geographic area considered for cumulative effects related to energy and mineral resources is within five miles of the proposed project and alternatives. A number of alternative energy projects are proposed within 5 miles, (see Tables 4.1-1 and 4.1-2 in Section 4.1. Table 4.10-1 lists the existing and foreseeable projects that could combine with the DHSP to result in cumulative effects.

**Table 4.10-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Energy and Minerals | Within 5-mile radius of the proposed project and alternatives | Loss of available energy and mineral resources | For the proposed project and all alternatives:<br>• Desert Sunlight Solar Farm Project<br>• Silverado Power Solar Project<br>• Desert Center II Solar Project<br>• Chuckwalla Race Track<br>• Eagle Mountain Pumping Plant<br>• Eagle Mountain Pumped Storage Project (not for Alternative E)<br>• Eagle Mountain Wind Project Met Towers (not for Alternative E)<br>For Alternatives B through E:<br>• Palen Solar Power Project<br>• Sol Orchard<br>• Red Bluff Substation<br>• I-10<br>• DPV1<br>• DPV2<br>• Blythe Energy Project Transmission Line |

The foreseeable projects that would combine with the proposed solar field area to create cumulative effects in combination with any of the solar field alternatives and gen-tie line alternatives (Alternatives 4 through7 and B through E) include the Desert Sunlight Solar Farm Project, the Silverado Power Solar Project, Desert Center II Solar Project, Chuckwalla Race Track, and Eagle Mountain Pumping Plant, Eagle Mountain Pumped Storage Project (not for Alternative E) and Eagle Mountain Wind Project Met Towers (not for Alternative E). The gen-tie line alternatives (Alternatives B through E), would have the potential for cumulative effects in combination with Sol Orchard, Palen Solar Power Project, the Red Bluff Substation, I-10, and DPV1, DPV2, and the Blythe Energy Project Transmission Line. Table 3.10-1 in Section 3.10 (Mineral Resources in the project area) describes all known past and current mineral developments within five miles of the proposed solar facility site. This table supplements the existing cumulative conditions relevant to mineral resources.

The temporal scope of this cumulative analysis is considered the period within which the proposed project or an alternative is actively present or being decommissioned because during the life of the project, the solar facility site cannot be used to harvest other mining materials or energy sources.

### *Cumulative Effects Analysis*

Most of the projects listed in Tables 4.1-1 and 4.1-2 and identified on Figure 4.1-1 in Appendix A have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

Effects related to access to known mineral resources are site-specific. A cumulative effect would only occur where the proposed project would affect access to mineral resources in the same way, within the same time, and at the same location. There are no active mineral resource operations within the boundaries of the DHSP. USGS identifies three mineral resource operations near the project (Table 3.10-1), but none of the mines are active. As previously described, mining claims on public lands under BLM jurisdiction are subject to BLM authority. The presence of the DHSP would not alter this jurisdiction or authority and would not permanently preclude access to any known mineral resource. Therefore, access to mineral resources would not be substantially affected by construction, operation, or decommissioning of the DHSP, and the project would not contribute to any adverse cumulative effects.

More generally, energy and mineral resources are common in the project study area. Sand, gravel, metals, and fuels required for the proposed project or alternatives and existing and reasonably foreseeable projects are widely available. Construction, operation, and decommissioning of the proposed project and existing and reasonable foreseeable projects would not substantially affect supply of these resources. While effects related to mineral and energy resource supply would be additive, the construction and operation of other existing and foreseeable projects would also not substantially affect supply of these resources; therefore, there would be no adverse cumulative effects.

Effects related to mineral and energy resources for Alternatives 5 through 7, and C through E would be essentially the same as described for the proposed project and with the contribution of existing and reasonable foreseeable projects would not represent substantial adverse cumulative effects. The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.10.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

***CEQA Significance Criteria***

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines; although the impact analysis presented in Sections 3.10.3 through 4.10.14 address both energy and mineral resources, the CEQA significance criteria are specific to mineral resources. These criteria are used to determine whether the proposed project or alternative would result in significant impacts to mineral resources under CEQA. The proposed project and alternatives would result in a significant impact to mineral resources if one of the following criteria are met.

MIN-1 Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

MIN-2 Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

***CEQA Significance Determination***

Alternatives 1, 2, 3, and A would not involve construction of the solar facility or gen-tie line. These alternatives would have no impacts on mineral or energy resources.

The proposed project and alternatives would require a source(s) of mineral resources during the construction and operation/maintenance phases, but development of the solar facility site would not interfere with any active mining operations, and would not constitute a substantial impact on regionally or locally important mineral resources. Development of the proposed project or an alternative does not alter BLM's jurisdiction or authority as related to mineral claims and explorations, and the potential for future explorations for mineral resources to occur on the solar facility site during the lifetime of the project would continue to be subject to BLM approval. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resources that would persist for a significant duration, the expected 30-year life of the project. Additionally, temporary access restrictions to mineral resources could occur as a result of project-related traffic. Therefore, Significance Criterion MIN-1 is addressed in the following discussion.

Construction, operation and maintenance, and decommissioning of the proposed project or an alternative would not result in impacts associated with the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan (Significance Criterion MIN-2); therefore, Significance Criterion MIN-2 would not be met by the project or an alternative and is not addressed below.

### *Alternative 4*

During construction and decommissioning of Alternative 4, traffic associated with the project would have the potential to affect mineral resources production in the project vicinity. However, there are no active mines within five miles of the project site at this time (MRDS 2011). Any potential access restrictions associated with the movement of vehicles and equipment to and from the site would be temporary.

During operation and maintenance of Alternative 4, access onto and across the solar facility site for the purposes of mineral exploration and extraction would be subject to the continued permitting authority of the BLM. Traffic associated with operation and maintenance of Alternative 4 would have a small potential to result in temporary access restrictions to mineral operations in the area; however, this would not result in impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Since BLM would still have jurisdiction over mineral resources on BLM land and any traffic-related effects on access to mineral resources would be temporary, the impacts of Alternative 4 related to Significance Criterion MIN-1 would be less than significant, and no mitigation is required.

**Cumulative Impacts**. Any impacts related to Significance Criterion MIN-1 would be minimal. Therefore, Alternative 4 would not represent a considerable contribution to any cumulative impacts to mineral resources.

### *Alternative 5*

Impacts would be the same as for Alternative 4.

### *Alternative 6*

Impacts would be the same as for Alternative 4.

### *Alternative 7*

Impacts would be the same as for Alternative 4.

### *Alternative B*

During construction and decommissioning of Alternative B, traffic associated with the gen-tie line alternative would have the potential to affect mineral resources production in the project vicinity. However, there are no active mines within five miles of the ROW at this time (MRDS 2011). Any potential access restrictions associated with the movement of vehicles and equipment to and from the site would be temporary.

During operation and maintenance of Alternative B, access across the ROW for the purposes of mineral exploration and extraction would be subject to the continued permitting authority of the BLM. Traffic associated with operation and maintenance of Alternative B would be negligible and would not result in impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Since BLM would still have jurisdiction over mineral resources on BLM land and any traffic-related effects on access to mineral resources would be temporary, the impacts of Alternative B related to Significance Criterion MIN-1 would be less than significant, and no mitigation is required.

*Alternative C*

Impacts would be essentially the same as for Alternative B.

*Alternative D*

Impacts would be essentially the same as for Alternative B.

*Alternative E*

Impacts would be essentially the same as for Alternative B.

**Cumulative Impacts**. Any impacts related to Significance Criterion MIN-1 would be minimal. Therefore, the project would not represent a considerable contribution to any cumulative impacts to mineral resources.

***CEQA-Required Energy Conservation Analysis***

In order to ensure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)). According to Appendix F of the State CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on fossil fuels; and (3) increasing reliance on renewable energy sources.

The DHSP itself would help achieve this goal because it would develop a renewable source of power, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. This is discussed in more detail below. In addition, Section 4.5 (Climate Change) describes effects on climate change/greenhouse gas emissions that would be caused by implementation of the DHSP, including a discussion on the effects of the projects on energy resources. Sections 4.2 (Air Quality) and 4.18 (Transportation) also discuss energy consuming equipment and vehicle trips required by the proposed project and alternatives.

In the absence of the DHSP, other power plants, both renewable and nonrenewable, may have to be constructed to serve the demand for electricity and to meet the California Renewables Portfolio Standard (RPS). Existing gas-fired plants may operate longer in order to meet the demand for energy. The impacts of these other facilities may be similar to those of the proposed solar facility because they require land areas comparable in size and environmental impacts comparable in degree to those required for the DHSP, whether for energy production or fuel extraction. Additionally, the environmental impacts of developing transmission capacity for such other power plants may be greater, especially where no transmission capacity exists or where energy production cannot be geographically concentrated to minimize the number of new transmission lines needed.

If the proposed solar facility were not built, California utilities would not receive the 150 MW contribution to the renewable state-mandated energy portfolio. SB X1-2 codifies the requirement to achieve 33 percent RPS statewide by the end of 2020, a key element of the 2008 AB 32 Scoping Plan (CARB 2008). To meet these requirements, the investor-owned utilities (IOUs) will have to almost triple their annual renewable energy procurement, from 33 terawatt-hours (TWh) in 2010 to 87 TWh by 2020. The project is expected to generate at least 300,000 MWh of renewable energy annually over its lifetime, a small but significant portion of the necessary new generation. In addition to contributing to renewable energy generation, specific measures and design features included by the DHSP Applicant in the project description that would conserve energy include:

- Requiring contractors to submit and implement a transportation plan describing how workers would travel to the project site and how to encourage carpooling and alternative forms of transportation (Applicant Measure AQ-4); and
- Commitment to recycling components from solar facility after decommissioning (Applicant Measure (Applicant Measure HAZ-10, Decommissioning Plan).

Specific requirements in project mitigation measures that would conserve energy and minimize inefficient and unnecessary consumption of energy include:

- Mitigation measure to control on-site emissions (MM AIR-2) and increase equipment efficiency (MM AIR-4);
- Mitigation measure requiring the Applicant to recycle photovoltaic panels and other infrastructure (MM PHS-6); and
- Mitigation measure requiring the Applicant develop a master Drought Water Management Program and a master Water Conservation Education Program (MM WAT-6).

Compliance with the applicant measures and mitigation measures identified in this EIS, would ensure that the proposed project and alternatives would not involve wasteful, inefficient, or unnecessary consumption of energy.

# Section 4.11

## Lands and Realty

## 4.11 LANDS AND REALTY

### 4.11.1 Methodology for Analysis

The BLM Master Title Plats (MTPs) and Land and Mineral Legacy Rehost 2000 System of automated records (LR2000) were reviewed to obtain information related to pending and authorized uses on the lands potentially affected by the proposed project and alternatives. Effects assessment with respect to NEPA was based on known impacts relative to construction, operation, maintenance and decommissioning of right-of-way (ROW) and land-use permits of all types on BLM-administered land.

### 4.11.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.11.7, as appropriate, to minimize impacts to lands and realty to the extent feasible. Mitigation measures encompass the substance and intent of the AMs, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures and the following AMs, the mitigation measures take precedence.

**AM LU-1** **Notification.** Property owners within 300 feet of the project shall be notified of all major project construction milestones, such as start of project construction. Said property owners shall be provided with a detailed construction schedule at least 30 days before construction so that they are informed as to the time and location of disturbance. Updates shall be provided as necessary.

### 4.11.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area Plan 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would remain in its existing condition in the near future, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur. A wide variety of uses such as mining, livestock grazing, recreation, energy, and the development of new utility facilities are allowed on the site under the BLM's land use designation of Class M, and it is possible that another applicant would use the site for an allowed land use in the future. Impacts from these projects would be dependent on the type of use proposed, and a separate NEPA process would be required.

### 4.11.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.11.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.11.6 Alternative 4 – Proposed Solar Project

#### *Construction*

#### *Direct Effects*

**Existing and Planned Land Uses.** Construction of Alternative 4 would develop 1,208 acres of undeveloped BLM-administered land, designated Multiple Use Class (MUC) M (Moderate Use) by the CDCA Plan. Per the CDCA Plan, solar energy generation facilities may be allowed on Class M land after NEPA requirements are met. The EIS addresses that requirement. Additionally, because DHSP project site is not currently identified as being associated with power generation, approval of Alternative 4 would require the CDCA Plan to be amended to identify the site as eligible for solar power generation. Therefore, Alternative 4 would not conflict with the CDCA Plan.

Two existing ROWs and one proposed ROW cross or would cross the southwestern portion of Alternative 4. Alternative 4 solar panels would avoid the existing and proposed transmission lines; however, the electrical collection systems would potentially cross the existing transmission ROWs. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. The BLM sent a letter to the Applicant on August 22, 2011 that listed the existing prior authorizations and segregations and advised the Applicant to coordinate the proposed solar energy development with the holders of prior existing rights. The BLM send letters to the Federal Energy Regulatory Commission and Southern California Edison in August 2011 notifying them of the proposed solar facility.

The Eagle Mountain Pumped Storage Project is planned to include a transmission line traversing the southwest parcel of the proposed DHSP. A Final EIS was published January 20, 2012. A Record of Decision has not yet been published. The Eagle Mountain Pumped Storage Project proposed transmission line would be a double circuit 500-kV transmission line that generally paralleled Eagle Mountain Road. The preferred alternative for the transmission line would parallel the existing 160-kV SCE transmission line for 10.5 miles. The electrical collection systems for Alternative 4 would potentially cross the preferred alternative. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. The Solar Energy Development Programmatic EIS is, similarly, in its draft form. As it does not describe any specific development in the vicinity of Alternative 4, but is intended to plan for future solar development in the area, Alternative 4 would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

**Habitat Conservation Areas.** The NECO Plan serves as the Habitat Conservation Plan for the project study area. It designates the Chuckwalla DWMA and Critical Habitat Unit (CHU) and the Alligator Rock ACEC as habitat conservation areas. Alternative 4 would not overlap with and therefore would not affect these habitat conservation areas. The Palen-Ford WHMA overlaps 47 acres of Alternative 4 in its northeast corner (see Figure 3.11-1 in Appendix A). This portion of the WHMA is nearly linear, abutted directly to the north by the Desert Sunlight Solar Farm (DSSF) project. Construction of Alternative 4 would heavily affect the portion of the WHMA it overlaps. Because of its shape, small size, and low connectivity to the rest of the WHMA, affecting this area would have little effect on the management of the WHMA as a whole. Implementing Mitigation Measures to protect wildlife habitat and connectivity would reduce any potential land-use effects to the overall WHMA. Mitigation Measure MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset Alternative 4 impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "the primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require enXco to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion.

Alternative 4 would be located within the Riverside East Solar Energy Zone (SEZ) in the Solar Energy Development Programmatic EIS. The Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative 4 but is intended to plan for future solar development in the area. Alternative 4 would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

**Agriculture.** Alternative 4 would not affect any agricultural lands. The nearest agricultural lands are approximately 1,000 feet west of Alternative 4.

### *Indirect Effects*

Construction effects associated with Alternative 4 would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Operation and Maintenance*

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative 4 would not be any different from the impacts related to the construction of the project, but would be somewhat less as the operation and maintenance would not impacts some land affected during construction, such as staging areas, resulting in a reduced footprint. With Alternative 4, approximately 1,208 acres of land managed by the BLM would be unavailable for other uses for approximately 30 years. No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur.

Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project study area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Decommissioning*

#### *Direct Effects*

**Existing and Planned Land Uses.** Decommissioning of Alternative 4 would temporarily affect a footprint similar to that of construction. When decommissioning is complete, the area would be restored to its existing BLM multiple use status, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative 4 overlapped existing uses (including roads and transmission lines). Once decommissioning is complete, Alternative 4 would no longer overlap these uses. No conflicts with the CDCA Plan, NECO Plan or known existing or proposed land uses would occur.

**Applicable Land Use Plans, Policies, or Regulations.** Land use plans, policies, or regulations may have changed by the time Alternative 4 would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

**Habitat Conservation Areas.** Decommissioning Alternative 4 would not affect any habitat conservation areas as the site does not currently overlap habitat conservation areas, nor would any be designated at the site while it would be in use as a solar farm. Decommissioning would create effects similar to those of construction in the WHMA, and mitigation measures for biological resources would reduce these effects. Mitigation Measure MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset project impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "The primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require enXco to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion.

**Agriculture.** Decommissioning Alternative 4 would not affect any agricultural lands as the site does not currently overlap agricultural lands, nor would any agricultural lands be designated on the site while it was being used as a solar farm.

*Indirect Effects*

Decommissioning of Alternative 4 would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the solar facility area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

*Mitigation Measures*

The following mitigation measures would be implemented to reduce effects to ROW holders to the maximum extent feasible.

**MM LR -1** **Prior ROW Coordination.** The Applicant shall coordinate with any prior ROW holders, document the effect the new use would have on existing holders, and resolve any incompatibilities to the existing holders at the Applicant's expense. The Applicant shall bear all costs for relocating, modifying, or flagging any facilities such as power poles, conductors, or pipelines that might be necessary to accommodate the new use.

*Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

### 4.11.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed within the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA), as shown on Figure 2-9, in Appendix A.

Effects of construction, operation and maintenance and decommissioning under Alternative 5 would substantially the same as those under Alternative 4. The notable exception is that Alternative 5 would avoid direct effects to the WHMA as those lands would be excluded from the Alternative 5 site, and therefore measures would not be required to mitigate effects. No conflicts with the CDCA Plan or NECO Plan would occur. Because Alternative 5 would be subject to the same previously existing ROW or other uses as Alternative 4, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

*Decommissioning*

The effects resulting from decommissioning of Alternative 5 would be the same as those discussed under Alternative 4.

***Mitigation Measures***

The measure identified for Alternative 4 would also be implemented under Alternative 5.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

### 4.11.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the solar facility site and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

Because the land removed from development consideration under Alternative 6 is all BLM land under the same designation as the rest of the solar facility, effects of the construction, operation and maintenance, and decommissioning of Alternative 6 on land use would not differ from those described with respect to Alternative 4; however, the magnitude would be reduced commensurate with the reduced footprint.

No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur. Alternative 6 would not develop the southwestern portion of the project which is encumbered by previously existing ROW.

***Decommissioning***

The effects resulting from decommissioning of Alternative 6 would be the same as those discussed under Alternative 4.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of the project would not result in substantial adverse direct or indirect effects to lands and realty such that mitigation measures are required. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects.

### 4.11.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Because the land removed from development consideration under Alternative 7 is all BLM land under the same designation as the rest of the solar facility, effects of the construction, operation and maintenance, and decommissioning of Alternative 7 on land use would not differ from those described with respect to Alternative 4; however, the magnitude would be reduced commensurate with the reduced footprint.

No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur. Alternative 7 would not develop the southwestern portion of the project which is encumbered by previously existing ROW.

***Decommissioning***

The effects resulting from decommissioning of Alternative 7 would be the same as those discussed under Alternative 4.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of the project would not result in substantial adverse direct or indirect effects to lands and realty such that mitigation measures are required. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects.

### 4.11.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no effects related to construction, operations and maintenance, or decommissioning would occur.

***Mitigation Measures***

No mitigation measures are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No effects would result from the implementation of Alternative A.

### 4.11.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Although Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project, the baseline for environmental effects is the existing condition of the site in September, 2011. At that time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B includes the full construction effects of this shared infrastructure.

***Construction***

***Direct Effects***

Construction of Alternative B would permanently disturb 92 acres within a ROW area of approximately 256 acres of primarily undeveloped multiple use BLM-administered land as a transmission line corridor. Alternative B would overlap the following existing authorized uses described in Table 3.11-2:

- Municipal Water District (MWD) ROW for canals and ditches;
- Two Southern California Edison (SCE) transmission lines;
- Interstate (I-) 10, which is under the jurisdiction of Caltrans;
- Underground telephone cable owned by Sprint;
- State Route (SR-)177, which is under the jurisdiction of Caltrans;
- Kaiser Road, which is under the jurisdiction of Riverside County;
- Southern California Gas Company water pipeline and well; and
- A privately-owned access road.

Adverse effects from road crossings would be temporary and limited to short-term traffic disturbance and access limitations during wire stringing. Towers would be sited to provide access and required buffers for the MWD ROW, the telephone cable, and the water pipeline and well, thus avoiding direct impacts to these existing land uses. The transmission lines could require minor design or siting modification, but all modifications would be done in accordance with existing laws and regulations by SCE and under the oversight of the California Public Utilities Commission and the California Independent System Operator. Adverse effects to existing land uses would be minimal.

**Applicable Land Use Plans, Policies, or Regulations.** The majority of Alternative B would be on BLM-administered land, approximately half of which is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. The other half of Alternative B would run along the west side of Kaiser Road, where it would be on land designated BLM Multiple Use Class L (Limited Use) by the CDCA Plan. Electrical generation, transmission, and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. No conflicts with the CDCA Plan would occur.

The portion of Alternative B southeast of SR-177 (approximately 5 miles) would be within designated utility corridor "K" ", and the remainder of the DHSP gen-tie line route across BLM lands outside of utility corridor "K" under Alternative B is covered by the CDCA Plan amendment made by the Record of Decision (ROD) for the DSSF. A large portion of Alternative B would be located within or adjacent to the existing Riverside County ROW for Kaiser Road where the underlying management is BLM, except for one parcel of land owned by MWD and one private parcel. According to Riverside County Code Section 17.284.020 excavation in, construction in, and installation of improvements or structures in the Riverside County ROW is permitted only upon the issuance of an encroachment permit. The Applicant will apply to the County of Riverside Transportation Department for an encroachment permit for Alternative B in accordance with Chapter 17.284 of the Riverside County Code. The Applicant would also enter into a land license agreement, lease, or permanent easement with MWD for the portions of land owned in fee by MWD, and would rely on this EIS to satisfy the CEQA obligations of MWD.

A 0.6-mile portion of Alternative B would traverse one private parcel designated by the County's General Plan as Open-Space Rural (OS-RUR) and zoned Natural Assets (N-A). The OS-RUR designation allows limited development. Alternative B would comply with the development policies of the OS-RUR designation because it would be constructed with building materials such as steel poles that rust to blend into the natural landscape, and would generally track existing power lines and power line ROW. Utility substations are permitted in the N-A zone subject to the issuance of a plot plan. The County's Code also permits public utility uses within any zoning classification subject to the issuance of a public use permit.

Alternative B would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative B, but is intended to plan for future solar development in the area. Therefore, Alternative B would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

**Habitat Conservation Areas.** Alternative B would traverse the Chuckwalla DWMA and CHU to reach the Red Bluff Substation, which would result in temporary and permanent land disturbance. The NECO Plan allows for development in 1 percent of the DWMA. The BLM-administered portion of the DWMA is approximately 465,287 acres in size; therefore, the development of Alternative B would represent a negligible percentage (0.008 percent) of the allowable development within the DWMA. The exact acreage disturbed and a discussion of effects to habitat and wildlife are described in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife).

As described above for Alternative 4, compliance with the CDFG's interim requirements is addressed in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife) along with mitigation required to ensure compliance.

**Agriculture.** Alternative B would not affect any agricultural lands. The nearest agricultural lands are approximately 1,000 feet west of Alternative B.

***Indirect Effects***

Construction effects associated with Alternative B would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

***Operation and Maintenance***

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative B would be reduced compared to those discussed under construction of Alternative B. Some land that would be affected by construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Decommissioning*

#### *Direct Effects*

**Existing and Planned Land Uses.** Decommissioning of Alternative B would affect a footprint similar to that of construction. When decommissioning is complete, 92 acres of land would be restored and would be available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative B overlapped existing uses (including roads and transmission lines). Once decommissioning is complete, Alternative B would no longer overlap these uses.

**Habitat Conservation Areas.** Decommissioning Alternative B would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative B overlaps these habitat conservation areas. The NECO Plan allows for development in 1 percent of the DWMA. The amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan and the disturbance would be limited to the duration of decommissioning activities. When decommissioning is complete, these lands would be restored and could once again be used as a habitat conservation area.

The other effects resulting from decommissioning Alternative B (i.e., effects to land use plans, policies or regulations, and agricultural lands) would be the same as those described under decommissioning of Alternative 4.

#### *Indirect Effects*

Decommissioning of Alternative B would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of the project would not result in substantial adverse direct or indirect effects to lands and realty such that mitigation measures are required. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

## 4.11.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would be built in the same ROW and follow the same path as Alternative B, but would construct new transmission infrastructure rather than sharing the DSSF infrastructure. The Alternative C ROW would extend west of the approved DSSF gen-tie ROW, 60 feet into the adjacent Chuckwalla DWMA. No planned temporary or permanent ground disturbance would occur within the DWMA; ground disturbance in the DWMA would occur only during emergency maintenance.

Because the baseline for the proposed project does not include any of the proposed construction for the DSSF gen-tie line, the direct and indirect effects of constructing, operating and maintaining, and decommissioning Alternative C would be substantially similar to effects described under Alternative B. However, Alternative C would cross the DSSF transmission line, an existing encumbrance on BLM land. Because Alternative C would be subject to the previously existing ROW, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

Alternative C would extend into the Chuckwalla DWMA. Although no temporary or permanent ground disturbance is planned in the DWMA, ground disturbance would potentially occur during emergency maintenance. Mitigation Measure VEG-6 would reduce any adverse effects to the DWMA, see Section 4.17, Special Designations.

No conflicts with the CDCA Plan or NECO Plan would occur. Alternative C would cross the existing Desert Sunlight ROW. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. No conflicts with BLM or Riverside County land use requirements would occur.

*Mitigation Measures*

The measure identified for Alternative 4 would also be implemented under Alternative C.

*Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

### 4.11.13 Alternative D – Cross-Valley Alignment

*Construction*

*Direct Effects*

**Existing and Planned Land Uses.** Construction of Alternative D would develop 86 acres of generally undeveloped multiple use BLM-administered land as a transmission line ROW. Alternative D would cross the following existing authorized uses described in Table 3.11-2:

- MWD ROW for canals and ditches;
- One existing 161-kV SCE transmission line;
- I-10, which is under the jurisdiction of Caltrans; and
- Underground telephone cable owned by Sprint.

In addition, Alternative D would cross the following existing authorized uses described in Table 3.11-2:

- SR-177, which is under the jurisdiction of Caltrans.

Effects from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to maintain access and required buffers for the

MWD ROW and the underground telephone cable; however, temporary disturbance could occur. The transmission lines could require minor design or siting modification.

The Eagle Mountain Pumped Storage Project's staff alternative double-circuit 500 kV transmission line would follow the same SCE transmission ROW as Alternative D. The Eagle Mountain Pumped Storage Project requested use of a 200-foot ROW for the transmission line (SWRCB 2010). The existing 161-kV SCE transmission line is located in a 100-foot ROW, with an additional 20-foot ROW immediately adjacent to this ROW (BLM 2011). Because Alternative D would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

**Applicable Land Use Plans, Policies, or Regulations.** Construction of Alternative D would also cross 5.1 miles of private land. Approximately 1.5 miles of the private land is zoned A-1-20, Agricultural. Public utility facilities are permitted in the A-1 zone subject to the approval of a permit and plot plan by Riverside County (Riverside County 2009). The remainder is zoned W-2-10, Controlled Development Zone. Transmission lines are allowed in W-2-10 zones when approved by Riverside County. Structure heights within the A-1 and W-2-10 zones may exceed 50 feet subject to the issuance of a variance by Riverside County (Riverside County 2009). With these approvals, conflicts with Riverside County land use requirements would not occur.

The remainder of Alternative D would be on BLM-administered land. The majority of the land is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. A short section south of I-10 and north of the Red Bluff Substation would be on land designated Multiple Use Class L (Limited Use). Electrical transmission and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved.

The majority of Alternative D, approximately 3.9 miles, would be on BLM-administered land that is not within a designated utility corridor. Approximately 1 mile of Alternative D north of Red Bluff Substation would be within designated utility corridor K. As explained in Chapter 2, the CDCA Plan would be amended to authorize those portions of the Alternative D gen-tie line route across BLM-managed lands outside of utility corridor "K." Conflicts with the CDCA Plan would thus not occur.

Alternative D would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative D but is intended to plan for future solar development in the area, Alternative D would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

**Habitat Conservation Areas.** The southern tip of Alternative D would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. The total acreage disturbed represents less than 0.0001 percent, significantly less than the 1 percent that may be developed according to the NECO Plan. Temporary and permanent effects to habitat and desert wildlife would occur as described in Sections 4.3 (Biological Resources – Wildlife) and 4.4 (Biological Resources – Vegetation).

**Agriculture.** Alternative D would cross approximately 1.5 miles of private agricultural land located within Riverside County. The County of Riverside General Plan (2003) has not identified any area within the Desert Center Planning Area, which includes the Alternative D ROW, as Prime Farmland soils. However, Riverside County has identified soils in one component of the Alternative D ROW where it crosses Rice Road, as Williamson Act Non-Prime Agricultural Land (California Department of Conservation, Division of Land Resources Protection 2007). Most non-prime lands are in agricultural uses, such as grazing or non-irrigated crops. Non-prime lands may also include other open space uses that are compatible with agriculture and consistent with local general plans (California Department of Conservation, Division of Land Resources Protection 2007). Although soils associated with the Alternative D ROW have not been surveyed by the NRCS, the geotechnical survey of the site suggests that the soils found on the Alternative B area were essentially uniform in nature and primarily sandy in texture, similar to the soils found in the agriculture lands adjacent to Rice Road (BLM 2011).

The construction of Alternative D would not result in a substantial adverse effect because transmission lines are generally consistent with agricultural uses. While a portion of the Alternative D ROW is enrolled in a Williamson Act contract, open space uses consistent with local plans and regulations, such as transmission lines, would not result in a substantial adverse effect. The agricultural preserves are zoned A-1-20, which allows public utilities subject to permit and approval by the County. Soils associated with the preserves have not been identified as Prime Farmland. No adverse effect to Prime Farmland soils would occur from the construction of Alternative D.

#### *Indirect Effects*

Construction effects associated with Alternative D would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as impacts to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Operation and Maintenance*

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative D would not be any different from the impacts related to the construction of Alternative D. Some land that would be affected during construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Decommissioning*

#### *Direct Effects*

**Existing and Planned Land Uses.** Decommissioning would affect a footprint similar to that during construction. When complete, decommissioning of Alternative D would result in restoration of 86 acres of land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative D overlapped existing uses (including agricultural land, roads, and transmission lines). Once decommissioning was completed, Alternative D would no longer overlap these uses.

**Applicable Land Use Plans, Policies, or Regulations.** Land use plans, policies, or regulations may have changed by the time Alternative D would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

**Habitat Conservation Areas.** Decommissioning Alternative D would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative D overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, these lands would be restored and could once again be used as a habitat conservation area.

**Agriculture.** Decommissioning Alternative D would result in effects similar to construction on Alternative D; however, once decommissioning was completed, Alternative D would no longer overlap agricultural land.

*Indirect Effects*

Decommissioning of Alternative D would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

***Mitigation Measures***

The measure identified for Alternative 4 would also be implemented under Alternative D.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

### 4.11.14 Alternative E – New Cross-Valley Alignment

***Construction***

*Direct Effects*

**Existing and Planned Land Uses.** Construction of Alternative E would develop 85 acres of generally undeveloped multiple use BLM-administered land as a transmission line ROW. Alternative E would cross the following existing authorized uses described in Table 3.11-2:

- MWD ROW for canals and ditches;
- One SCE transmission lines;
- I-10, which is under the jurisdiction of Caltrans; and
- Underground telephone cable owned by Sprint.

In addition, Alternative E would overlap the following existing authorized uses described in Table 3.11-2:

- SR-177, which is under the jurisdiction of Caltrans.

Effects from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent effects to the MWD ROW and the underground telephone cable; however, temporary disturbance could occur. Because Alternative E would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

**Applicable Land Use Plans, Policies, or Regulations.** Construction of Alternative E would also cross 4.25 miles of private land zoned W-2-10, Controlled Development Zone. Transmission lines are allowed in W-2-10 zones when approved by Riverside County. Structure heights within W-2-10 zones may exceed 50 feet subject to the issuance of a variance by Riverside County (Riverside County 2009). With these approvals, conflicts with Riverside County land use requirements would not occur.

The remainder of Alternative E would be on BLM-administered land. The majority of the land is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. A short section east of SR 177 and south of I-10 and north of the Red Bluff Substation would be on land designated Multiple Use Class L (Limited Use). Electrical transmission and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. Construction of the portion of Alternative E that is on BLM-administered land but not within a utility corridor (5.4 miles) would require a CDCA Plan amendment.

The majority of Alternative E would not be within a designated utility corridor. Approximately 1 mile of Alternative E north of Red Bluff Substation would be within designated utility corridor K. As explained in Chapter 2, the CDCA Plan would be amended to authorize those portions of the Alternative E gen-tie line route across BLM-managed lands outside of utility corridor "K."

Alternative E would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative E but is intended to plan for future solar development in the area. Therefore, Alternative E would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

**Habitat Conservation Areas.** The southern tip of Alternative E would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. As with Alternative B, the total acreage disturbed represents less than 0.0001 percent, significantly less than the 1 percent that may be developed according to the NECO Plan. Temporary and permanent effects to habitat and desert wildlife would occur as described in Sections 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Indirect Effects*

Construction effects associated with Alternative E would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

## *Operation and Maintenance*

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative E would not be any different from the impacts related to the construction of Alternative E. Some lands that would be affected during construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint.

Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

## *Decommissioning*

### *Direct Effects*

**Existing and Planned Land Uses.** Decommissioning would affect a footprint similar to that during construction. When complete, decommissioning of Alternative E would result in restoration of 85 acres of land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative E overlapped existing uses (including agricultural land, roads, and transmission lines). Once decommissioning is completed, Alternative E would no longer overlap these uses.

**Applicable Land Use Plans, Policies, or Regulations.** Land use plans, policies, or regulations may have changed by the time Alternative E would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

**Habitat Conservation Areas.** Decommissioning Alternative E would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative E overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, these lands would be restored and could once again be used as a habitat conservation area.

**Agriculture.** Decommissioning Alternative E would result in effects similar to construction on Alternative E; however, once decommissioning was completed, Alternative E would no longer overlap agricultural land.

### *Indirect Effects*

Decommissioning of Alternative E would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or

DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

### *Mitigation Measures*

The measure identified for Alternative 4 would also be implemented under Alternative E.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

## 4.11.15 Cumulative Effects

### *Geographic Scope*

The geographic extent for the consideration of cumulative effects to lands and realty and agricultural resources is in eastern Riverside County and includes the projects described in Section 4.1.4 (Cumulative Scenario) Tables 4.1-1 and 4.1-2. An analysis of potential cumulative effects to land use and agricultural resources needs to cover a large area because current applications for development of renewable energy projects and other facilities could convert a very large acreage of undeveloped public and private land. Table 4.11-1 lists the existing and foreseeable projects that have the potential to combine with the DHSP to result in a cumulative effect.

**Table 4.11-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Lands and Realty | Eastern Riverside County | Impacts to surrounding land and reality uses, conflicts with habitat conservation or natural community conservation plans, increase developed and industrial use | All projects listed in Tables 4.1-1 and 4.1-2.<br>Large scale energy projects in the nearby vicinity include:<br>• Desert Sunlight Solar Farm Project<br>• Silverado Power Solar Project<br>• Desert Center II Solar Project<br>• Eagle Mountain Pumping Plant<br>• Sol Orchard<br>• Palen Solar Power Project |

A large number of renewable projects have been proposed on BLM-administered land, state land, and private land in California, including the Desert Sunlight Solar Farm Project, Silverado Power Solar Project, Desert Center II Solar Project, Eagle Mountain Pumping Plant, Sol Orchard, and Palen Solar Power Project all within 10 miles of the proposed project. However, not all projects listed will complete the environmental review process, and not all projects will be funded and constructed. Therefore, it is unlikely that all of the projects would be constructed for the following reasons: (1) Not all developers will develop the detailed information necessary to meet BLM standards; (2) The large size of many projects may result in permitting challenges related to endangered species, mitigation measures or requirements, and other issues; and (3) After project approval, construction financing must be obtained (if it has not been obtained earlier in the process).

### *Cumulative Effects Analysis*

**Alternatives 1, 2, 3, and A.** Alternatives 1, 2, and A would not have any project-level effects and would not contribute to cumulative adverse effects.

**Alternative 4.** Existing development near the project area includes those projects listed in Table 4.1-1 (Existing Projects in the I-10 Corridor). Within the I-10 corridor area used in this analysis, estimated at over 2,040,000 acres (see Table 4.1-2 – Foreseeable Projects Along the I-10 Corridor [Eastern Riverside County]), foreseeable projects could convert over 52,000 acres, or 2.5 percent, to new land uses. The proposed project would represent 1,208 acres, or 2.3 percent or the land converted and less than 0.1 percent of the I-10 corridor area. Three of the energy projects in Table 4.1-2 are in the vicinity of Alternative 4: Palen Solar Power Project, Desert Sunlight Solar Farm Project (currently under construction), and Eagle Mountain Pumped Storage Project. These projects would add large and small-scale industrial, utility-related and other uses in the region, resulting loss of access to lands that are currently managed for multiple-use by BLM. The DSSF is adjacent to the DHSP site, immediately to the north.

Past development has increased human use of land in the project area. However, because of the limited availability of water, human development in the project area has been limited to small scattered towns and cities and various isolated projects such as the mine and water pumping station, among large tracts of undeveloped land. Construction of multiple projects within the same area could create a substantial adverse cumulative effect to surrounding land and realty uses if the projects were built on or adjacent to areas with planned land and realty uses or with existing easements of ROW. The incremental contribution of Alternative 4 to cumulative effects would be small because of the size of the project and because no development is planned on the project site. Implementation of AM LU-1, which requires notification of all major project construction milestones to property owners within 300 feet of the project would ensure property owners are aware of the changes to the existing land use due to construction of the project.

While construction and operation effects of the projects included in the cumulative scenario would likely conflict with habitat conservation or natural community conservation plans, each project included in this cumulative analysis would be required under the HCPs and DRECP interim CDFG requirements to include mitigation for any effects. Similarly, it is not likely that cumulative construction effects would affect agricultural land or zoning, as agriculture in the project area is restricted by limited water supplies.

Operation of the foreseeable projects in the project study area would substantially increase developed and industrial use of land in the area. Given the size and diversity of these projects and the large acreage of currently undeveloped BLM-administered land in the project area, it is likely that several of these projects could conflict with existing or planned land uses or with applicable state or local land use plans and zoning designed to minimize environmental effects. Based on the scale of land use conversion (over 52,000 acres or 2.5 percent of the land along the I-10 corridor), cumulative effects would be considered substantially adverse. The incremental effect of Alternative 4 would represent a substantial portion (over 2 percent) of the land converted but would represent a change or less than 0.1 percent of the land along the I-10 corridor.

**Alternative B.** Alternative B would not contribute to cumulative air quality effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

**Alternatives 5, 6, and 7.** In light of their similarities, the lands and realty cumulative effects for Alternatives 5 and 6 would be essentially the same as described for Alternative 4 and cumulative effects would be substantially adverse.

**Alternatives C, D, and E**. Existing development near Alternatives C, D, and E would be the same as for Alternative 4 and includes those projects listed in Table 4.1-1 (Existing Projects in the I-10 Corridor). Within the I-10 corridor area used in this analysis (see Table 4.1-2 – Foreseeable Projects Along the I-10 Corridor [Eastern Riverside County]), foreseeable projects could convert over 52,000 acres to new land uses. The DSSF is adjacent to the DHSP site, immediately to the north and the DSSF gen-tie line would parallel Alternative C.

Construction of multiple projects within the same area could create a substantial adverse cumulative effect to surrounding land and realty uses. The incremental contribution of Alternative C, D, and E to cumulative effects would be minimal because of the limited duration of construction and ground disturbance for the gen-tie line and would be reduced through implementation of AM LU-1, which requires property owners within 300 feet of the project to be notified of all major project construction milestones.

While construction and operation effects of the projects included in the cumulative scenario would likely conflict with habitat conservation or natural community conservation plans, each project included in this cumulative analysis would be required under the HCPs and DRECP interim CDFG requirements to include mitigation for any effects. Similarly, it is not likely that cumulative construction effects would affect agricultural land or zoning, as agriculture in the project area is restricted by limited water supplies and the gen-tie lines would not require large amounts of ground disturbance nor would they require use of land used for agriculture.

Operation of the foreseeable projects in the project area would substantially increase developed and industrial use of land in the area. Given the size and diversity of these projects and the large acreage of currently undeveloped BLM-administered land in the project area, it is likely that several of these projects could conflict with existing or planned land uses or with applicable state or local land use plans and zoning designed to minimize environmental effects. Although the scale of land use conversion is considerable, the incremental effect of Alternatives C, D, and E would represent a minor portion (less than 0.5 percent) of the land converted in the project study area and would not be substantially adverse.

### 4.11.16 CEQA Considerations

#### *CEQA Significance Criteria*

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. Under CEQA, the proposed project and alternatives would have significant impact on lands, realty, or agriculture if they would:

LU-1 Conflict with existing or planned land uses on or around the site;

LU-2 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;

LU-3 Conflict with any applicable habitat conservation plan (HCP) or natural community conservation plan;

LU-4 Conflict with existing zoning for agricultural use, and/or a Williamson Act contract; or

LU-5 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

For the proposed project and alternatives, the following CEQA criteria were determined to be inapplicable or to result in no impact under all alternatives. The determination regarding these significance criteria is discussed below, and these criteria are not discussed further in this section.

- Physically divide an established community:

  The proposed project and alternatives would not physically divide an established community; therefore, there would be no impact. Although there is some residential development in the project area, the proposed project and alternatives would not divide this development.

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency and the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, to non-agricultural uses:

  There is no FMMP-designated Prime or Unique Farmland or Farmland of Statewide Importance in the project area; therefore, there would be no impact.

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]):

  The proposed project and alternatives would not be located on any forest or timberland; therefore, there would be no impact.

- Result in the loss of forest land or conversion of forest land to non-forest use:

  The proposed project and alternatives would not be located on any forest land; therefore, there would be no impact.

### *CEQA Significance Determination*

Alternatives 1, 2, 3, and A would not have any impacts related to land use, realty, or agriculture. Under these alternatives the DHSP and gen-tie lines would not be approved and would not be constructed. Lands would remain in their existing use.

**Alternative 4.** The proposed solar layouts would develop 1,208 acres of BLM-administered multiple use land for solar energy production, precluding other uses of this land for the duration of the project. However, because the land is generally undeveloped, no specific planned land uses have been identified, and only a small percentage of the existing undeveloped land would be affected.

Alternative 4 would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be reduced. Impacts to the WHMA would be minimal given the small size, unusual shape, and low connectivity of the overlapping WHMA area under Alternative 4, and implementation of mitigation measures for biological resources would mitigate these impacts. Mitigation Measure MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset project impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "The primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require enXco to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion. With these measures impacts related to existing and planned uses (criterion LU-1) would be less than significant.

There would be no impact for Criterion LU-3 because the alternatives would not overlap any HCPs.

There would be no impact under LU-2, LU-4 and LU-5. With regard to LU-2, the project/Alternative 4 would be compatible with the relevant land use classifications. With regard to LU-4 and LU-5, there would be no impact because the DHSP site would not overlap any agricultural lands.

Decommissioning impacts are not applicable to LU-1, LU-4 and LU-5. LU-1 is not applicable because conflicting uses would not be allowed while the site was in use for solar energy generation. BLM's NEPA process would ensure compatibility of future uses with existing land uses in the project area. Decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. LU-4 and LU-5 are not applicable, as there is no existing agricultural land on the project site, nor would any be designated while the site was in use as a solar project. There would be no impact under LU-2 because the land would be restored to a state compatible with the CDCA Plan or future applicable land use plans, policies, or regulations. There would be no impact under LU-3 because the alternatives would not overlap any HCPs.

As described in Section 4.11.15, the effects of Alternative 4, when considered with existing and proposed projects in the area, could present a cumulatively considerable impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

**Alternative 5.** Impacts from Alternative 5 would be the same as those under Alternative 4, but with impacts to the WHMA eliminated.

**Alternative 6.** Impacts from Alternative 6 would be the same as those under Alternative 4, but slightly reduced by the smaller project footprint.

**Alternative 7.** Impacts from Alternative 7 would be the same as those under Alternative 4, but slightly reduced by the smaller project footprint.

**Alternative B.** Impacts from the Alternative B gen-tie line would be less than significant for criterion LU-1. There would be no impact under LU-2, LU-4, and LU-5.

With regard to LU-1, although development of Alternative B would preclude other uses of the land, because the land is currently undeveloped and no specific planned land uses have been identified, impacts would be less than significant. In addition, Alternative C would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be further reduced.

With regard to LU-2, there would be no impact because Alternative B would be compatible with the relevant land use classifications. With regard to LU-4 and LU-5, there would be no impact because Alternative B would not overlap any agricultural lands. Construction impacts would be less than significant for criterion LU-3. Although lands in the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed by construction of Alternative B, the lands disturbed would be much less than the 1 percent allowed by the NECO Plan.

Decommissioning impacts are not applicable to LU-1, LU-4, and LU-5. There would also be no impact under LU-2. This is because conflicting uses would not be allowed while the site was in use for the gen-tie line, and because decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. For LU-3, initial impacts would be less than significant as decommissioning activities would temporarily disturb additional land in the Chuckwalla DWMA and CHU similar to what occurred during construction. However, when decommissioning was complete, beneficial impacts would result because this land would be restored.

Alternative B would be built on the reasonably foreseeable DSSF gen-tie towers and would not require additional permanent ground disturbance or additional work crews for conductor stringing. As such, it would not contribute to cumulative impacts to lands and realty.

**Alternative C.** Project-level impacts from the Alternative C gen-tie line would be similar to those of Alternative B.

As described in Section 4.11.15, the effects of Alternative C, when considered with existing and proposed projects in the area, could present a cumulatively significant impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

**Alternative D.** Construction impacts would be less than significant for criterion LU-1. There would be no impact under LU-2, LU-4, and LU-5.

With regard to LU-1, although development of Alternative D would preclude other uses of the land, because the land is currently undeveloped and no specific planned land uses have been identified, impacts would be less than significant. In addition, Alternative D would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be reduced. With regard to LU-2, there would be no impact because Alternative D would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be less-than-significant impacts.

Although Alternative D would cross farmland protected as Non-Prime under the Williamson Act, transmission lines are consistent with farmland use. The farmlands crossed are currently zoned A-1-20, which permits use by utilities with county permit and approval.

Impacts would be less than significant for criterion LU-3. Although lands in the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed by construction of Alternative D, the lands disturbed would be much less than the 1 percent allowed by the NECO Plan.

Decommissioning impacts are not applicable to LU-1, LU-4 and LU-5. There would be no impact under LU-2. LU-1 is not applicable because conflicting uses would not be allowed while the site was in use as Alternative D. BLM's NEPA process would ensure compatibility of future uses with existing land uses in the project area. Decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. Impacts related to LU-4 and LU-5 would be less than significant. While decommissioning would occur on agricultural land protected as Non-Prime by the Williamson Act, utility activities are consistent with this land use and permitted by zoning. With regard to LU-2, there would be no impact because the land would be restored to a state compatible with the CDCA Plan or future applicable land use plans, policies, or regulations. For LU-3, initial impacts would be less than significant as decommissioning activities would temporarily disturb additional land in the Chuckwalla DWMA and CHU similar to what occurred during construction. However, when decommissioning was complete, beneficial impacts would result because this land would be restored and could again be used as a habitat conservation area.

As described in Section 4.11.15, the effects of Alternative D, when considered with existing and proposed projects in the area, could present a cumulatively significant impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

**Alternative E.** Because of its proximity to Alternative D, impacts resulting from Alternative E would be similar. Alternative E does not overlap agricultural land uses, however. Impacts from this alternative would be less than significant, with no mitigation required.

## 4.12 NOISE AND VIBRATION

### 4.12.1 Methodology for Analysis

Noise and vibration issues addressed for the various alternatives were identified by independent evaluation of project-related effects. The identified issues include:

- Noise from on-site construction activity at the solar panel field site (including the project substation), and along the transmission line corridor;
- Noise from construction-related vehicle traffic;
- Noise from facility operations; and
- Vibration impacts from on-site construction activity.

Noise impacts to wildlife are addressed in Section 4.3, Biological Resources – Vegetation.

Analysis of these issues was performed through quantitative analysis of expected noise levels, review of agency policies and regulatory requirements, and qualitative analyses for issues that did not lend themselves to quantitative evaluation. Quantitative analyses were prepared to address noise and vibration from construction equipment operations, noise from construction-related traffic, and noise from facility operations. Much of the analysis contained herein relies upon the analysis contained in the *Desert Sunlight Solar Farm Project Final EIS and CDCD Plan Amendment* (2011), as this project is located immediately north of the Desert Harvest Solar Project (DHSP) solar facility site, would utilize the same type of solar panels (photovoltaic), and includes the installation of a gen-tie line and on-site substation (6.3 acres), similar to the proposed project. Additional details regarding effects assessment methodologies are discussed under relevant impact topics.

The area of interest for noise and vibration issues is typically localized. Airborne noise dissipates fairly rapidly with increasing distance from the noise source. The distances involved depend primarily on the intensity of the noise generated by the source, and partly on weather conditions such as wind speed and direction, the height and strength of temperature inversions, and the height of cloud cover. Sound is detectable somewhat further downwind than upwind of a noise source. Temperature inversions and cloud cover can reflect or refract sound that is radiated upwards; this effect can increase noise levels at locations that receive the reflected or refracted sound. Such reflection and refraction effects are important primarily for high intensity sounds. For noise sources such as construction activity and vehicle traffic, the region of influence is typically less than 0.25 mile from the noise source.

Ground-borne vibrations typically dissipate rapidly with increasing distance from the vibration source. The distances involved depend primarily on the intensity of the vibrations generated by the source, and partly on soil and geologic conditions. Detectable vibrations will travel the greatest distance through solid rock and the least distance through loose, unconsolidated soils or saturated soils. For vibration sources such as construction activity and vehicle traffic, the region of influence is typically less than 1,000 feet from the vibration source.

Table 4.12-1 compares the distances of the closest existing residences to action alternative features. In addition, the closest area of the Joshua Tree National Park is 1.8 miles (9,400 feet) northeast of the solar facility site.

**Table 4.12-1. Comparison of Distances of the Closest Residences to the Project Features**

| | Distance to Closest Existing Residence | | |
|---|---|---|---|
| **Project Component** | **Solar Facility** | **Gen-Tie Transmission Line** | **Substation** |
| Alternative 4 – Proposed Solar Project | 6,500 feet | 500 feet | No nearby residences |
| Alternative 5 – Solar Project Excluding WHMA | 6,500 feet | 500 feet | No nearby residences |
| Alternative 6 – Reduced Footprint Solar Project (excludes WHMA and SW site) | 6,500 feet | 500 feet | No nearby residences |
| Alternative A – No Gen-Tie | 6,500 feet | --- | No nearby residences |
| Alternative B – Proposed Gen-Tie (Shared Towers) | 6,500 feet | 500 feet | No nearby residences |
| Alternative C – Separate Transmission Towers within Same ROW | 6,500 feet | 500 feet | No nearby residences |
| Alternative D – Cross-Valley Alignment | 6,500 feet | 1,450 feet | No nearby residences |
| Alternative E – New Cross-Valley Alignment | 6,500 feet | 900 feet | No nearby residences |

Source: Google Earth 2011.

### 4.12.2 Applicant Measures

The following Applicant Measure (AM) has been incorporated as a design feature of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts this applicant measure (indicated by the prefix AM) by incorporating it into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.12.5, as appropriate, to minimize impacts related to noise to the extent feasible. Mitigation measures encompass the substance and intent of the AM, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures required for noise impacts and the following AM, the mitigation measures take precedence.

**AM N-1:** **Construction Schedule**. Most construction activity will be limited to daytime hours consistent with Riverside County noise ordinance limitations. Certain electrical connection activities at the solar project site would occur at night for safety reasons, but would not require any heavy equipment operations.

### 4.12.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

As a result, no noise impacts would occur.

### 4.12.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.12.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.12.6 Alternative 4 – Proposed Solar Project

Effects on the existing ambient noise and vibration levels may arise from project construction, operations and maintenance, and decommissioning equipment and vehicles as well as from the introduction of construction or operations and maintenance-related traffic on local roads near the proposed solar facility site.

#### *Construction*

Construction of Phase 1 (90 MW) is expected to begin in September 2012 and continue through July 2013 (11 months). Construction of Phase 2 (60 MW) would begin in July 2013 and continue through August 2014 (14 months) (24 months total for Phases 1 and 2). The gen-tie line and on-site substation construction would occur during Phase 1, with gen-tie construction starting in early October 2012 to late February 2013 (5 months) and substation construction starting in late November 2012 to late February 2013 (3 months). The on-site workforce during construction is expected to be as high as 250 workers at the peak of construction, with an estimated average workforce of 100 workers. Construction would generally occur between 7:00 a.m. and 7:00 p.m. Monday through Friday. Additional hours may be necessary to correct schedule deficiencies or to complete critical construction activities. An estimated 4,425 truck roundtrips would be required throughout construction to deliver equipment and materials, with an estimated maximum of 46 deliveries per day (heavy-duty truck roundtrips) for the solar facility site. It is anticipated that material deliveries for the solar facility would maintain a constant flow over the 24-month construction period (Phases 1 and 2).

Site preparation would consist of removal of vegetation within the project area by scarification, where necessary. Preparation would likely proceed by section, so that only the portion of the solar facility site where panels are about to be laid out over a period of 6 months would be scarified at one time. Site grading would be limited to the major access roads, inverter pad locations, and the ancillary facilities, including the parking area, O&M building, and switchyard. Grading would also be completed if the slope is greater than 1 percent at the set-back boundaries of defined intermittent streams to reduce the slope and make continuous with the solar panel area. After the site is prepared and graded, the panel field would be laid out. The panel field would consist of solar panels arranged on either fixed-tilt or tracking frames in long rows. The uprights for the frame would either be driven into the ground by means of a small pile-driver or supported by pre-poured concrete foundations (ballasts) on the surface of the soil, depending on soil studies and engineering design. Inverters and transformers would be located throughout the solar facility, and connect to the project substation and switchyard via underground trenching. The project substation, O&M building, and parking/storage area would cover 5.2 acres in the northwest corner of the solar facility site.

Temporary construction buildings, including three to four trailer offices would be placed along the western border of the project area near the entrance gate along with portable latrines. A small laydown area to accommodate delivery of materials, vehicles, etc. would be located adjacent and north of the substation. Additional parking and delivery of construction materials would utilize the future substation footprint, prior to its construction. Temporary staging areas would be located throughout the project area, and would be used until their area was overcome by the build-out of the panel array.

The project site would be accessed from I-10, utilizing the on-ramp/off-ramp of Rice Road (SR-177), and heading north on the existing Kaiser Road along the western boundary of the project area to a new facility access road to be located in the northwest corner of the project site. New unpaved roads would be constructed to serve as access roads from the existing road network to the facilities and photovoltaic field.

### *Direct Effects*

### Solar Facility Construction (Includes On-Site Substation)

**Noise from On-Site Construction Activities.** Noise generated from on-site construction activities would be similar to the estimated noise levels for the various construction phases determined for the Desert Sunlight Solar Farm Project, as this project also includes the installation of PV arrays and an on-site substation. The Desert Sunlight Solar Farm Project, however, is substantially larger than the DHSP, as it covers over 4,000 acres and includes installation of PV arrays to provide an annual generation capacity of 550 MW, all within a similar construction timeframe as the DHSP (26 months vs. 24 months for DHSP). The DHSP solar facility would cover just over 1,200 acres and would install PV arrays to provide an annual generation capacity of 150 MW in a 24-month timeframe. The project would cover about one-third the area (30 percent) and would install just over one-fourth (27 percent) of the generation capacity (i.e., number of PV arrays). As a result, the intensity of the construction activities associated with the DHSP would be expected to be substantially less than the Desert Sunlight Solar Farm Project. This means that fewer construction crews would be required for the DHSP, the distance between crews working on the site may be greater, and/or there may be fewer overlapping activities. However, since construction activities are generally spread throughout the site, having multiple activities going on simultaneously (i.e., greater intensity) does not necessarily result in different noise levels at a given location, as the construction activity closest to an off-site receptor would generally dominate the noise environment with minimal, if any, additive noise from other activities going on in other areas located farther away. Therefore, the difference in intensity between the DHSP and the Desert Sunlight Solar Farm Project would not necessarily result in greater noise levels for off-site receptors. Additionally, similar construction equipment would be utilized for each of these projects, including pile driver, loader, dozer, grader, forklift, backhoe, trencher, roller, and plow. Therefore, the estimated construction noise levels for the various phases of on-site construction estimated for the Desert Sunlight Solar Farm Project provide a representative estimate of the noise levels that would be generated by the DHSP.

As noted above, DHSP solar facility development would occur over a 24-month period, and would occur in phases. Construction of Phase 1 would include site grading and preparation of a portion of the site, construction of the O&M building and on-site roads, on-site well, on-site substation and switchyard, and assembly and installation of panel blocks and wiring. Construction of Phase 2 would include additional grading and preparation, assembly and installation of panel blocks and wiring, and construction of the on-site settling ponds. Construction activity would generally occur over a standard five-day workweek (Monday-Friday) with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). For safety reasons, some electrical connection activity would typically occur at night when the solar panels are not energized, but this activity would not require any significant heavy equipment operations.

Construction noise was modeled for the Desert Sunlight Solar Farm Project for 5 of the 18 construction sub-phases:

- Vegetation clearing;
- Site grading;
- Installation of array support posts;
- Trenching and underground power cable installation; and
- Soil compacting and dust palliative application.

Other construction activity sub-phases would be expected to generate lower noise levels than these phases. In most cases, equipment used during a construction sub-phase would be distributed in groups of items in different portions of the active construction area. Not all equipment items would operate concurrently, but several items of equipment would typically be active over a construction day. Equipment items that would typically be operating in proximity were identified and used in the construction noise analyses. Table 4.12-2 summarizes the construction noise analysis results for the five sub-phases with the greatest potential for noise generation during solar facility site construction.

**Table 4.12-2. Summary of Construction Noise for the Solar Facility Site**

| Construction Phase | Typical Equipment | Distance from Construction (feet) | Maximum 1-Hour Leq Increment (dBA) | Average Daytime Leq Increment (dBA) | CNEL Increment (dBA) |
|---|---|---|---|---|---|
| Vegetation Clearing | Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck | 100 | 80.6 | 77.1 | 74.1 |
| | | 400 | 67.9 | 64.5 | 61.5 |
| | | 700 | 62.4 | 59.0 | 55.9 |
| | | 1,000 | 58.7 | 55.2 | 52.2 |

**Table 4.12-2. Summary of Construction Noise for the Solar Facility Site**

| Construction Phase | Typical Equipment | Distance from Construction (feet) | Maximum 1-Hour Leq Increment (dBA) | Average Daytime Leq Increment (dBA) | CNEL Increment (dBA) |
|---|---|---|---|---|---|
| | | 1,500 | 54.1 | 50.6 | 47.6 |
| | | 2,500 | 47.5 | 44.0 | 41.0 |
| Site Grading | Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck | 100 | 81.3 | 78.9 | 75.9 |
| | | 400 | 68.6 | 66.2 | 63.2 |
| | | 700 | 63.1 | 60.7 | 57.7 |
| | | 1,000 | 59.3 | 57.0 | 54.0 |
| | | 1,500 | 54.7 | 52.4 | 49.3 |
| | | 2,500 | 48.0 | 45.7 | 42.7 |
| Array Post Installation | Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck | 100 | 83.2 | 81.3 | 78.3 |
| | | 400 | 70.7 | 68.8 | 65.8 |
| | | 700 | 65.3 | 63.5 | 60.5 |
| | | 1,000 | 61.7 | 59.9 | 56.9 |
| | | 1,500 | 57.4 | 55.5 | 52.5 |
| | | 2,500 | 51.3 | 49.4 | 46.4 |
| Trenching and Underground Cable Installation | Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck | 100 | 75.7 | 72.6 | 69.6 |
| | | 400 | 63.2 | 60.1 | 57.1 |
| | | 700 | 57.8 | 54.7 | 51.7 |
| | | 1,000 | 54.2 | 51.1 | 48.1 |
| | | 1,500 | 49.9 | 46.7 | 43.7 |
| | | 2,500 | 43.9 | 40.6 | 37.6 |
| Soil Compaction and Dust Palliative Application | Roller-Compactors, ATVs, Water Truck | 100 | 74.8 | 72.2 | 69.1 |
| | | 400 | 62.3 | 59.7 | 56.7 |
| | | 700 | 57.1 | 54.5 | 51.4 |
| | | 1,000 | 53.5 | 50.9 | 47.9 |
| | | 1,500 | 49.3 | 46.7 | 43.7 |
| | | 2,500 | 43.5 | 40.9 | 37.9 |

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: BLM 2011 – Table 4.10-2.

There are a few scattered rural residences within 1.5 miles of the proposed solar facility site (refer to Figure 3.12-1 in Section 3.12). The closest occupied residence is about 6,500 feet (1.24 miles) east-southeast from the proposed solar facility property line. All other nearby homes are approximately 7,800 feet (1.48 miles) or farther from the proposed solar facility property line. The closest home south of the proposed solar facility along Kaiser Road is 1.5 miles from the site. Joshua Tree National Park is located 1.8 miles to the northeast, 3.5 miles to the west, and over 7 miles to the north. The Eagle Mountain Elementary School and the Eagle Mountain Village residential area are over 5.5 miles northwest of the proposed solar facility site. The Lake Tamarisk development is about 2.75 miles south of the proposed solar facility site. The Community of Desert Center is about 5 miles south of the proposed solar facility site.

Construction of the solar facility would involve a few periods when construction activity would be within 6,500 feet of the closest residence east-southeast of the solar facility site (installation of perimeter fencing and construction of the closest solar array modules). For most of the 24-month construction period, however, construction activity at the proposed solar facility site would be well over 6,500 feet from the nearest residence and more than 1.48 miles from other identified sensitive receptors (residences, schools, Joshua Tree National Park, etc.).

Existing background noise levels near the solar facility site are expected to be low, with typical daytime noise levels of 35 to 50 dBA. Background noise levels would be higher during periods of strong winds. Based on construction noise estimates presented above in Table 4.12-2, noise from construction activity generally would be audible at locations less than a half mile from the solar facility; however, no receptors are located this close to the solar facility site. When construction activity is occurring in the western and northern portions of the solar facility site, it would not be audible for any nearby residences. For the residence closest to the solar facility site, maximum CNEL noise levels from construction activity would be less than 46 dBA (highest level occurs during array post installation), which is within Riverside County's normally acceptable range for rural residential land uses. Maximum 1-hour Leq noise levels at this location would be about 43 dBA. This would be within expected average background noise conditions and would not result in a substantial increase over daytime noise levels even when ambient levels are as low as 35 dBA.

**Noise from Construction-Related Traffic.** After exiting I-10, project-related construction trucks and worker vehicles would travel north along SR-177 and then continue north along Kaiser Road to the main entrance of the project site. Baseline existing traffic conditions were analyzed for these roadways utilizing traffic data collected in November 2011 and presented in the Traffic Study for the DHSP (Hernandez, Kroone & Associates 2012). Baseline traffic conditions for I-10 were developed from 2008 traffic count data and 2007 truck count data downloaded from the Caltrans website (BLM 2011). In addition, traffic from construction of the Desert Sunlight Solar Farm Project would increase traffic along these routes. I-10 was split into two segments, one east of SR-177 and the other west of SR-177. Caltrans data show that medium trucks (two axles and six tires) account for 5.2 percent of annual average daily traffic (AADT) on I-10 west of SR-177 and 5.6 percent of AADT on I-10 east of SR-177 (BLM 2011 – Table E2-1). Caltrans data also show that heavy trucks (three or more axles) account for 34.3 percent of AADT on I-10 west of SR-177 and 37.8 percent of AADT on I-10 east of SR-177 (BLM 2011 – Table E2-1).

Existing traffic conditions along SR-177 south of Kaiser Road and along Kaiser Road in the Project vicinity were based on 24-hour traffic counts completed in November 2011 and provided in the Traffic Study for the DHSP (Hernandez, Kroone & Associates 2012 – Appendix B). Traffic counts show that on SR-177 south of Kaiser Road medium trucks account for 10.9 percent and heavy trucks account for 27.5 percent of the existing traffic. Kaiser Road was modeled in two segments, one between SR-177 and the Lake Tamarisk development (south of Lake Tamarisk Road), and the other between the Lake Tamarisk development and the project site (north of Lake Tamarisk Road). Traffic counts show that on Kaiser Road medium trucks account for 14.4 percent of existing average daily traffic and heavy truck account for 17.3 percent (Hernandez, Kroone & Associates 2012 – Appendix B). Traffic counts taken north of the Lake Tamarisk development show that on Kaiser Road medium trucks account for 19.3 percent of existing average daily traffic and heavy trucks account for 2.5 percent (Hernandez, Kroone & Associates 2012 – Appendix B).

Construction periods for the solar project and gen-tie line would be expected to overlap. Kaiser Road would be used by construction-related traffic for both the solar project and the gen-tie line. Consequently, construction-related traffic volumes used for this analysis were the combined volumes attributable to solar project construction and gen-tie line construction. Based on the equipment materials and deliveries estimated for the solar project, a worst-case scenario of up to 52 deliveries per day would occur (see Hernandez, Kroone & Associates 2012 – Appendix B, Distribution of Construction Traffic by Time of Day). Overall construction period traffic patterns were developed by adding construction-related truck trips and construction-related worker commute trips to the baseline hourly traffic patterns for each roadway segment. Construction truck traffic was assumed to be all heavy trucks. Construction-related worker commute traffic was assumed to be all autos with 30 percent of the normal crew (or 27 workers) carpooling, reducing the total number of vehicles by 27. Arriving worker commute traffic was assumed to occur between 5:00 a.m. and 8:00 a.m., and to depart between 4:00 p.m. and 7:00 p.m. (see Hernandez, Kroone & Associates 2012 – Appendix B, Estimate of Construction Employee Trips – Desert Harvest Project Trips). Analysis was performed for the peak construction period, which would include 240 construction workers and 10 security guards (250 total). The traffic noise modeling assumed free-flow vehicle speeds of 45 miles per hour (mph) on Kaiser Road, 50 mph on SR-177, and 65 mph on I-10.

Table 4.12-3 summarizes modeled peak 1-hour Leq and CNEL levels for existing conditions and existing plus project construction at various distances (50 feet, 100 feet, 250 feet, 500 feet, 750 feet, and 1,000 feet) from the road centerline. Please refer to the Appendix F for detailed calculations.

**Table 4.12-3. Modeled 1-Hour Leq/CNEL Noise Levels from Construction Traffic, Proposed Project**

| Location | Distance from Road Centerline (feet) | Existing 1-Hour Leq / CNEL (dBA) | Existing + Proposed Project 1-Hour Leq / CNEL (dBA) | Change from Existing 1-Hour Leq / CNEL (dBA) |
|---|---|---|---|---|
| Desert Center (I-10), West of SR-177 | 50 | 81.7 / 79.6 | 81.8 / 79.9 | 0.1 / 0.3 |
| | 100 | 78.6 / 76.6 | 78.7 / 76.8 | 0.1 / 0.2 |
| | 250 | 74.7 / 72.6 | 74.7 / 72.8 | 0.0 / 0.2 |
| | 500 | 71.7 / 69.6 | 71.7 / 69.8 | 0.0 / 0.2 |
| | 750 | 69.9 / 67.8 | 70.0 / 68.0 | 0.1 / 0.2 |
| | 1,000 | 68.6 / 66.6 | 68.7 / 66.8 | 0.1 / 0.2 |
| Desert Center (I-10), East of SR-177 | 50 | 81.7 / 79.7 | 81.8 / 79.9 | 0.1 / 0.2 |
| | 100 | 78.6 / 76.6 | 78.7 / 76.8 | 0.1 / 0.2 |
| | 250 | 74.7 / 72.6 | 74.7 / 72.8 | 0.0 / 0.2 |
| | 500 | 71.7 / 69.6 | 71.7 / 69.8 | 0.0 / 0.2 |
| | 750 | 69.9 / 67.8 | 70.0 / 68.1 | 0.1 / 0.3 |
| | 1,000 | 68.7 / 66.6 | 68.7 / 66.8 | 0.0 / 0.2 |

**Table 4.12-3. Modeled 1-Hour Leq/CNEL Noise Levels from Construction Traffic, Proposed Project**

| Location | Distance from Road Centerline (feet) | Existing 1-Hour Leq / CNEL (dBA) | Existing + Proposed Project 1-Hour Leq / CNEL (dBA) | Change from Existing 1-Hour Leq / CNEL (dBA) |
|---|---|---|---|---|
| SR-177 South of Kaiser Road | 50 | 70.9 / 72.0 | 71.4 / 72.7 | 0.5 / 0.7 |
| | 100 | 67.8 / 68.9 | 68.3 / 69.6 | 0.5 / 0.7 |
| | 250 | 63.8 / 64.9 | 64.4 / 65.6 | 0.6 / 0.7 |
| | 500 | 60.8 / 61.9 | 61.3 / 62.6 | 0.5 / 0.7 |
| | 750 | 59.1 / 60.1 | 59.6 / 60.8 | 0.6 / 0.7 |
| | 1,000 | 57.8 / 58.9 | 58.3 / 59.6 | 0.5 / 0.7 |
| Kaiser Road South of Lake Tamarisk | 50 | 61.9 / 62.2 | 64.6 / 66.0 | 2.7 / 3.8 |
| | 100 | 58.8 / 59.1 | 61.6 / 62.9 | 2.8 / 3.8 |
| | 250 | 54.9 / 55.1 | 57.6 / 58.9 | 2.7 / 3.8 |
| | 500 | 51.8 / 52.1 | 54.6 / 55.9 | 2.7 / 3.8 |
| | 750 | 50.1 / 50.3 | 52.8 / 54.1 | 2.7 / 3.8 |
| | 1,000 | 48.8 / 49.1 | 51.6 / 52.9 | 2.8 / 3.8 |
| Kaiser Road North of Lake Tamarisk | 50 | 52.4 / 52.3 | 61.9 / 63.7 | 9.5 / 11.4 |
| | 100 | 49.3 / 49.3 | 58.8 / 60.6 | 9.5 / 11.3 |
| | 250 | 45.4 / 45.3 | 54.8 / 56.6 | 9.5 / 11.3 |
| | 500 | 42.3 / 42.3 | 51.8 / 53.6 | 9.5 / 11.3 |
| | 750 | 40.6 / 40.5 | 50.0 / 51.9 | 9.4 / 11.4 |
| | 1,000 | 39.3 / 39.3 | 48.8 / 50.6 | 9.5 / 11.3 |

CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Appendix N.

As shown in Table 4.12-3, construction-related traffic would have little noise effect in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Most people cannot detect noise level changes of less than 1.5 to 2 dBA, but find noise level changes of 3 to 5 dBA to be noticeable, and noise level changes of 5 dBA or more to be obvious. A 10-dBA noise level increase represents a doubling of perceived noise levels. Thus, changes in CNEL or 1-hour Leq noise levels of less than 1 dBA in the Desert Center area would not be noticeable. At greater distances from I-10, noise from construction-related traffic would have a greater influence on overall traffic noise conditions. Along SR-177 south of Kaiser Road, the increase in noise generated by construction traffic would not be noticeable (>1 dBA increase). Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase) and north of Lake Tamarisk Road noise levels would substantially increase (>10 dBA increase). At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

**Ground Vibrations from Construction Activities.** Heavy equipment and trucks used for solar facility construction are potential sources of ground vibration. Ground vibration conditions expected from solar facility construction have been evaluated using procedures developed by Caltrans (2004). The Caltrans procedure provides equations for predicting ground vibration levels by distance from selected types of construction equipment according to local ground conditions. Four categories of ground conditions are used to select equation parameters in the Caltrans procedure:

- Category 1: Weak or soft soils, loose soils, loose sand, mud, saturated soils, plowed ground, etc.;
- Category 2: Competent soils, most sands, sandy clays, silty clays, gravel, silts, weathered rock, etc.;
- Category 3: Hard soils, dense compacted sands, dry consolidated clay, consolidated glacial till, etc.;
- Category 4: Hard, competent rock, bedrock, exposed hard rock, etc.

Caltrans Category 2 conditions were considered representative of the solar facility area, same as for the Desert Sunlight Solar Farm Project located immediately north of the DHSP, for the early phases of construction when most heavy equipment would be in use. Although Category 3 might be representative of the on-site conditions at the solar facility following the soil compaction phase of construction activity, there would be much less heavy equipment use following that phase. In addition, Category 2 soil conditions would continue to prevail at off-site locations. Table 4.12-4 summarizes the results of the vibration analysis.

**Table 4.12-4. Ground Vibration Levels for Typical Equipment Used for Solar Facility Construction**

| Equipment Type | Vibratory Type | Parameter | Distance from Operating Equipment Item | | | |
|---|---|---|---|---|---|---|
| | | | 25 feet | 100 feet | 200 feet | 300 feet |
| Vibratory Pile Driver, typical | Frequent or Continuous | PPV, in/sec | 0.170 | 0.028 | 0.011 | 0.007 |
| | | Human Response | mildly annoying | barely perceptible | barely perceptible | not perceptible |
| | | Building Damage Potential | very low | none | none | none |
| Self-Loading Scraper | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Static Roller-Compactor | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Large Bulldozer | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |

**Table 4.12-4. Ground Vibration Levels for Typical Equipment Used for Solar Facility Construction**

| Equipment Type | Vibratory Type | Parameter | Distance from Operating Equipment Item | | | |
|---|---|---|---|---|---|---|
| | | | 25 feet | 100 feet | 200 feet | 300 feet |
| Drill Rig or Auger | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Loaded Truck | Single Event | PPV, in/sec | 0.076 | 0.013 | 0.005 | 0.003 |
| | | Human Response | barely perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | None | none | none | none |
| Small Bulldozer | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Excavator or Backhoe | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Wheeled Loader | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |

PPV = peak particle velocity, inches per second

Human reactions and building damage potential have different thresholds depending on whether the vibration events are isolated discrete events or frequent/continuous events.

Building damage potential is based on cosmetic (not structural) damage to buildings or structures of various types and ages. Building damage categories are:

Extremely Low = exceeds cosmetic damage threshold for extremely fragile historic buildings, ruins, or monuments
Very Low = exceeds cosmetic damage threshold for fragile buildings
Low = exceeds cosmetic damage threshold for historic buildings
Moderate = exceeds cosmetic damage threshold for older residential buildings
High = exceeds cosmetic damage threshold for newer residential buildings
Very High = exceeds cosmetic damage thresholds for modern commercial and industrial buildings.

Source: BLM 2011 – Table 4.10-5.

As demonstrated by the data in Table 4.12-4, ground vibration from most types of equipment used for solar facility construction would not be perceptible at distances of 200 feet or more from operating equipment items. For vibratory pile drivers, ground vibrations would not be perceptible at distances of 300 feet or more from the operating equipment. Construction activity would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings in the solar facility vicinity.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

## *Operation and Maintenance*

Noise generated from operations and maintenance of the proposed project would include noise generated by the inverters, substation, switchyard, tracking-system, if used, and gen-tie line; vegetation clearing and weed management activities; and maintenance activities, such as periodic water washes of the panels and road maintenance. Operations and maintenance work would be completed on an as-needed basis, with 16 full-time O&M workers traveling from Palm Springs or from a leased or purchased facility in Desert Center. Facilities would be maintained utilizing 2 small 4-wheel drive vehicles for panel washing and 4 pickup trucks for accessing the site and delivering equipment and crews for maintenance activities. Panel washing would occur no more than three times per year and less frequently over time as soil compaction increases (EnXco 2011a – DR#1 Question N-9). On-site vehicle use would be limited to service trucks at not more than 2 hours per day, not more than 20 hours a year for larger vehicles (enXco 2011a – DR#1 Question AR-2). Operation and maintenance of the facility would result in both on-site and off-site noise.

### *Direct Effects*

### Solar Facility (Including On-Site Substation)

**Noise from Facility Operations.** Operational activities at the solar facility site would generate minimal noise. Identifiable sources of noise would include on-site vehicle use for panel-washing, vegetation treatment, delivering equipment and crews for maintenance activities; power conversion station (PCS) equipment; and the on-site substation. There would be limited amounts of vehicle traffic on the site; this vehicle activity would be intermittent and would not be expected to generate off-site noise effects at identified residences.

Inverters and transformers at the PCS would produce low levels of noise during facility operations, but this noise would be limited to daytime hours when the solar arrays are generating electricity. Each PCS would have an inverter located within an enclosure and one transformer. The Applicant is still determining the model of inverters to use but the model would likely be similar to the Xantrex 500-kW model or the Satcon 1-MW model. Noise measurements were taken under nominal operating conditions with all inverter fans operating at maximum speed for 5 possible SMA inverters, a potential inverter selection for the proposed project. Each PCS inverter would generate a noise level of about 80 dBA at a distance of 3.28 feet (1 meter) (EnXco 2011a – DR#1 Question N-2) or 74 dBA at a distance of 6.5 feet (2 meters), assuming a reduction of 6 dB per doubling of distance. Based on similar equipment used on the Desert Sunlight Solar Farm Project, each PCS inverter was determined to generate a noise level of about 75 dBA at a distance of 10 feet (just slightly higher than measured for SMA inverters), or about 78 dBA at 10 feet for two inverters (BLM 2011). The PCS enclosure would provide 15 to 20 dBA of noise reduction, reducing the inverter noise to 63 dBA at a distance of 10 feet from the enclosure (BLM 2011). The PCS transformers generate a noise level of about 58 dBA at a distance of 6 feet (BLM 2011). For analysis purposes, the overall noise generation from the PCS (inverter housing, air conditioner, and transformer) is estimated to be 65 dBA at a distance of 10 feet (BLM 2011). This noise level would be reduced to 50 dBA at a distance of 56 feet, to 40 dBA at a distance of 178 feet, and to 35 dBA at a distance of 312 feet. The PCS would be centrally located within each 1 MW array of solar panels, about 240 to 300 feet from the sides of the array. Thus, the PCS would generate little audible noise beyond the solar facility property line during daytime hour. The PCS would not be a source of noise during nighttime hours. Furthermore, the closest residence is located 6,500 feet from the property line such that noise generated by the PCS would not be detectible.

Transformers and related equipment at the on-site substation would be the most important source of operational noise. Similar to the Desert Sunlight Solar Farm Project, transformers at the on-site substation would have cooling fans that operate during daytime hours, but which would not be needed at night when the solar arrays are not generating power. The transformers at the on-site substation are expected to generate noise levels of 89 dBA at a distance of 6 feet during the daytime, and 86 dBA at a distance of 1 foot during nighttime hours (BLM 2011). Daytime noise generation from the on-site substation is expected to be 70.6 dBA at a distance of 50 feet from the substation, 60 dBA at 168 feet, 50 dBA at 521 feet, 45 dBA at 907 feet, and 40 dBA at 1,535 feet (BLM 2011). Nighttime noise generation from the on-site substation is expected to be 52.1 dBA at a distance of 50 feet, 50 dBA at a distance of 64 feet, 40 dBA at a distance of 200 feet, and 35 dBA at a distance of 353 feet (BLM 2011). The on-site substation would be located over 1.25 miles from the closest existing residence. Daytime noise from the on-site substation would generally be well below background noise levels (50-35 dBA) at the closest residence; nighttime noise would also be well below the background noise levels (35-25 dBA) at the closest residence. Furthermore, these noise levels would meet the Riverside County stationary source exterior noise limit of 65 dBA, 10-minute Leq and Riverside County Ordinance No. 847, which limits noise at rural residential properties to 45 dBA Lmax.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

## *Decommissioning*

The expected operational life of the proposed project is 30 years. When permanent closure is appropriate, a decommissioning plan would be developed and submitted to the BLM for review and approval. Closure may range from temporary "mothballing" to complete removal of equipment and restoration of the land to BLM approved specifications. The latter of these formulates the basis for the noise analysis for decommissioning.

### *Direct Effects*

**Noise from Decommissioning Activities.** Decommissioning of the solar facility would require disassembly of mechanical equipment components, demolition of on-site buildings, and removal of perimeter fencing. Many equipment components would include materials that could be recycled, although some materials would probably require disposal in appropriate landfills or other waste disposal areas. It is likely that some type of revegetation program also would be required. Equipment used for decommissioning would generally be similar to that used for construction. Decommissioning activities would likely require less heavy equipment than facility construction, since no vegetation clearing or site grading would be required. Noise effects from decommissioning activities at the solar facility site would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-2, above).

**Noise from Traffic Associated with Decommissioning**. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

**Ground Vibrations from Decommissioning Activity.** Ground vibrations generated during solar facility decommissioning would be similar to those previously discussed with respect to construction activities (see Table 4.12-4, above).

*Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

***Mitigation Measures***

The following mitigation measure would ensure that Project-related construction activities would be consistent with the Riverside County Noise Ordinance (No. 847):

**MM NOI-1** **Limit Construction Hours When Occurring Near Occupied Residences.** EnXco or its construction contractor shall limit construction activity within a quarter mile of an inhabited dwelling (as identified at the time of construction) to 6:00 a.m. to 6:00 p.m. during June through September and 7:00 a.m. to 6:00 p.m. during October through May to maintain consistency with Riverside County Noise Ordinance No. 847. Certain electrical connection activities at the solar facility site may occur at night for safety reasons; however, no heavy equipment operations would be required for these activities.

***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative 4 would result in a substantial increase (>10 dBA) in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative 4.

### 4.12.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries and access routes as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). The WHMA is located along the northeastern boundary of the project site. No residences are located near this area, such that exclusion of the WHMA does not change the distance of the project components to the closest residence(s).

***Direct Effects***

***Construction***

**Noise from On-Site Construction Activity.** The solar facility under Alternative 5 would be slightly smaller than for Alternative 4 (discussed above in Section 4.12.6), but construction activities would occur on the same schedule as Alternative 4 and would require the same types of equipment. Additionally, the size of the area disturbed on a given day may be slightly smaller under Alternative 5 than Alternative 4. While the total number of some equipment items may be less under Alternative 5 than Alternative 4, similar types and numbers of equipment items would typically be operating in proximity. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity at the solar facility under Alternative 5 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise impacts at any nearby residence. For the residence closest to the solar facility site, maximum CNEL increments from construction activity would be less than 46 dBA, which is within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL). Maximum 1-hour Leq noise levels at this location would be about 43 dBA. This would be within expected average background noise conditions and would not result in a substantial increase over daytime noise levels even when ambient levels are as low as 35 dBA. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.).

**Noise from Construction-Related Traffic.** Alternative 5 would require slightly less construction materials and related truck trips, and possibly fewer construction workers than Alternative 4; however, the difference would be minimal. For the purposes of noise effects analysis, it is assumed that traffic noise generated during construction of the solar facility under Alternative 5 would be identical to Alternative 4 (see Table 4.12-3).

As shown in Table 4.12-3, construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Along SR-177 south of Kaiser Road, the increase in noise generated by construction traffic would be not be noticeable (>1 dBA increase). Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase) and north of Lake Tamarisk Road noise levels would substantially increase (>10 dBA increase). At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

**Ground Vibrations from Construction Activity.** Ground vibration effects from construction activities for Alternative 5 would be the same as presented previously in connection with Alternative 4.

*Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

***Operation and Maintenance***

*Direct Effects*

**Noise from Facility Operations.** Operational noise under Alternative 5 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing residence.

*Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

***Decommissioning***

*Direct Effects*

The noise and vibration effects resulting from decommissioning under Alternative 5 would be the same as those discussed under Alternative 4.

*Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

***Mitigation Measures***

Applicant measures and mitigation measures for Alternative 5 would be the same as those discussed for Alternative 4 (Mitigation Measure NOI-1).

***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative 5 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative 5.

### 4.12.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries and access routes as Alternative 4 except that it would exclude a portion of the site which hosts sensitive plant species and the southwestern parcel. There are no residences located near the southwestern parcel (closest residence is located 1.5 miles to the south).

*Direct Effects*

***Construction***

**Noise from On-Site Construction Activity.** Alternative 6 would be smaller in scale than Alternative 4 (and Alternative 5), but construction activities would occur on the same schedule as for

Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 6 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 6. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 6 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise effects at any nearby residence. For the residence closest to the solar facility site, maximum CNEL increments from construction activity would be less than 46 dBA, which is within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL). Maximum 1-hour Leq noise levels at this location would be about 43 dBA. This would be within expected average background noise conditions and would not result in a substantial increase over daytime noise levels even when ambient levels are as low as 35 dBA. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.).

**Noise from Construction-Related Traffic.** Alternative 6 would be expected to require less construction material, fewer construction-related truck trips, and slightly fewer construction workers than under Alternatives 4 and 5. As such, construction-related traffic and associated noise effects would be less than that modeled for Alternative 4. As such, noise levels along I-10, SR-177, and Kaiser Road would be less than the noise levels estimated in Table 4.12-3. However, the difference in noise levels is not expected to be substantially lower such that there would continue to be a substantial increase in noise levels resulting from the project along Kaiser Road north of Lake Tamarisk Road.

**Ground Vibrations from Construction Activity.** Ground vibration effects from construction activities for Alternative 6 would be the same as presented previously in connection with Alternative 4.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

## ***Operation and Maintenance***

### *Direct Effects*

**Noise from Facility Operations.** Operational noise under Alternative 6 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing residence.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

### Decommissioning

#### *Direct Effects*

The noise and vibration effects resulting from decommissioning under Alternative 6 would be the same as those discussed under Alternative 4.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

### Mitigation Measures

Applicant measures and mitigation measures for Alternative 6 would be the same as those discussed for Alternative 4 (Mitigation Measure NOI-1).

### Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 6 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative 6.

## 4.12.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would exclude the same portion of the site as Alternative 6. There are no residences located near the southwestern parcel (closest residence is located 1.5 miles to the south).

#### *Direct Effects*

### Construction

**Noise from On-Site Construction Activity.** Alternative 7 would be smaller in scale than Alternative 4 (and Alternative 5), but construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 7 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 7. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 7 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise effects at any nearby residence. For the residence closest to the solar facility site, maximum CNEL increments from construction activity would be less than 46 dBA, which is within the normally acceptable range for rural residential land uses (Table

3.12-2; up to 60 dBA CNEL). Maximum 1-hour Leq noise levels at this location would be about 43 dBA. This would be within expected average background noise conditions and would not result in a substantial increase over daytime noise levels even when ambient levels are as low as 35 dBA. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.).

**Noise from Construction-Related Traffic.** Alternative 7 would be expected to require less construction material, fewer construction-related truck trips, and slightly fewer construction workers than under Alternatives 4 and 5. As such, construction-related traffic and associated noise effects would be less than that modeled for Alternative 4. As such, noise levels along I-10, SR-177, and Kaiser Road would be less than the noise levels estimated in Table 4.12-3. However, the difference in noise levels is not expected to be substantially lower such that there would continue to be a substantial increase in noise levels resulting from the project along Kaiser Road north of Lake Tamarisk Road.

**Ground Vibrations from Construction Activity.** Ground vibration effects from construction activities for Alternative 7 would be the same as presented previously in connection with Alternative 4.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

### *Operation and Maintenance*

### *Direct Effects*

**Noise from Facility Operations.** Operational noise under Alternative 7 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing residence.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

### *Decommissioning*

### *Direct Effects*

The noise and vibration effects resulting from decommissioning under Alternative 7 would be the same as those discussed under Alternative 4.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

***Mitigation Measures***

Applicant measures and mitigation measures for Alternative 7 would be the same as those discussed for Alternative 4 (Mitigation Measure NOI-1).

***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative 7 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative 7.

### 4.12.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no noise or vibration effects related to construction, operations and maintenance, or decommissioning would occur.

***Mitigation Measures***

No mitigation measures are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No noise or vibration effects would result from the implementation of Alternative A.

### 4.12.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm Project by sharing the approved transmission towers. Stringing of enXco's gen-tie line would occur concurrently with construction of First Solar Desert Sunlight Solar Farm Project's gen-tie line. However, since this construction had not yet begun as of September 2011, this analysis assumes that Alternative B would require all related construction activities, including tower installation.

***Direct Effects***

***Construction***

**Noise from On-Site Construction Activities.** The Alternative B gen-tie line would be identical to the gen-tie line for the Desert Sunlight Solar Farm Project and the same number of towers would be constructed (73 transmission structures, including 65 tangents and 8 dead-ends, with 5 splicing locations and 20 guard structures). As such, construction of the Alternative B gen-tie line would result in identical noise levels as were estimated for the Desert Sunlight Solar Farm Project. For the transmission line, four of six construction phases were selected for noise analysis (BLM 2011):

- Site preparation;
- Tower foundations
- Tower assembly and erection; and
- Power line stringing.

The remaining two construction phases (testing and site cleanup) would have limited heavy equipment use, and would generate lower noise levels than these phases. Not all equipment items would operate concurrently, but several items of equipment would typically be active over a construction day. Equipment items that would typically be operating in proximity were identified and used in the construction noise analyses. Construction activity would generally occur over a standard five-day workweek (Monday through Friday) with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Table 4.12-5 summarizes the construction noise analysis results for the five construction phases with the greatest noise generation for the Alternative B gen-tie line.

**Table 4.12-5. Summary of Construction Noise for the Gen-Tie Line (Alternative B)**

| Construction Phase | Typical Equipment | Distance from Construction (feet) | Maximum 1-Hour Leq Increment (dBA) | Average Daytime Leq Increment (dBA) | CNEL Increment (dBA) |
|---|---|---|---|---|---|
| Site Preparation | Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck | 100 | 80.3 | 78.1 | 75.0 |
| | | 200 | 74.1 | 71.8 | 68.8 |
| | | 300 | 70.3 | 68.1 | 65.1 |
| | | 500 | 65.5 | 63.2 | 60.2 |
| | | 700 | 62.1 | 59.9 | 56.9 |
| | | 1,000 | 58.4 | 56.1 | 53.1 |
| Tower Foundations | Tracked Dozer, Wheeled Loader, Backhoe, Auger Rig, Drill Rig, Compressor, Pump, Jackhammer, Portable Mixer, Forklift, Mobile Crane, Dump Trick, Cement Mixer Truck, Specialty Trucks, Water Truck | 100 | 84.3 | 79.8 | 76.8 |
| | | 200 | 78.0 | 73.6 | 70.6 |
| | | 300 | 74.2 | 69.9 | 66.9 |
| | | 500 | 69.3 | 65.0 | 62.0 |
| | | 700 | 65.9 | 61.7 | 58.7 |
| | | 1,000 | 62.1 | 58.0 | 55.0 |
| Tower Assembly and Erection | Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck | 100 | 81.9 | 78.0 | 75.0 |
| | | 200 | 75.7 | 71.9 | 68.8 |
| | | 300 | 72.0 | 68.2 | 65.2 |
| | | 500 | 67.3 | 63.4 | 60.4 |
| | | 700 | 64.0 | 60.2 | 57.2 |
| | | 1,000 | 60.4 | 56.6 | 53.6 |
| Power Line Stringing | Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck | 100 | 78.9 | 75.6 | 72.6 |
| | | 200 | 72.7 | 69.4 | 66.4 |
| | | 300 | 69.0 | 65.7 | 62.7 |
| | | 500 | 64.3 | 61.0 | 57.9 |
| | | 700 | 61.0 | 57.7 | 54.7 |
| | | 1,000 | 57.4 | 54.1 | 51.1 |

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: BLM 2011 – Table 4.10-6.

The Alternative B gen-tie line would be located on the west side of Kaiser Road from the solar facility site to a location south of the Tamarisk Lake development. There are some rural residences in addition to the Tamarisk Lake development along that part of the transmission line corridor (refer to Figure 3.12-1 in the Noise section of Chapter 3). Based on aerial photographs, the closest homes appear to be about 500 feet from the transmission line corridor. The four construction phases evaluated above would last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Consequently, construction activity would be near any given location for only a few weeks of the overall construction period.

As indicated in Table 4.12-6, daytime construction activity along the transmission line corridor would be a temporary but noticeable noise source for locations within about 1,000 feet of the active construction area. CNEL increments at the homes closest to the transmission line corridor (distance of 500 feet) would temporarily reach about 62 dBA during tower foundation construction, with maximum 1-hour Leq noise levels of about 69 dBA. CNEL increments would temporarily exceed Riverside County's normally acceptable limit for rural residential land uses, but would remain within the conditionally acceptable range.

**Noise from Construction-Related Traffic.** Noise from construction-related traffic for the solar facility site, including the gen-tie line, was presented previously in Table 4.10-3. Construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Most people cannot detect noise level changes of less than 1.5 to 2 dBA, but find a noise level change of 5 dBA or more to be obvious. The changes in CNEL and 1-hour Leq noise levels in the Desert Center area would not be noticeable. At greater distances from I-10, noise from construction-related traffic would have a greater influence on overall traffic noise conditions. Along SR-177 south of Kaiser Road, the increase in noise generated by construction traffic would not be noticeable (>1 dBA increase). Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase) and north of Lake Tamarisk Road noise levels would substantially increase (>10 dBA increase). At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

**Ground Vibrations from Construction Activities.** Ground vibration effects from construction of the gen-tie line under Alternative B were assessed using the same procedures as discussed previously for the solar facility site. Table 4.12-6 summarizes the ground vibration analysis for construction of gen-tie line.

**Table 4.12-6. Ground Vibration Levels for Typical Equipment Used for Gen-Tie Line Construction**

| Equipment Type | Vibratory Type | Parameter | Distance from Operating Equipment Item | | | |
|---|---|---|---|---|---|---|
| | | | 25 feet | 100 feet | 200 feet | 300 feet |
| Static Roller-Compactor | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |

**Table 4.12-6. Ground Vibration Levels for Typical Equipment Used for Gen-Tie Line Construction**

| Equipment Type | Vibratory Type | Parameter | Distance from Operating Equipment Item | | | |
|---|---|---|---|---|---|---|
| | | | 25 feet | 100 feet | 200 feet | 300 feet |
| Self-Loading Scraper | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Large Bulldozer | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Drill Rig or Auger | Frequent or Continuous | PPV, in/sec | 0.089 | 0.015 | 0.006 | 0.004 |
| | | Human Response | distinctly perceptible | barely perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | extremely low | none | none | none |
| Loaded Truck | Single Event | PPV, in/sec | 0.076 | 0.013 | 0.005 | 0.003 |
| | | Human Response | barely perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Jackhammer | Frequent or Continuous | PPV, in/sec | 0.035 | 0.006 | 0.002 | 0.001 |
| | | Human Response | barely perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Small Bulldozer | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Excavator or Backhoe | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |
| Wheeled Loader | Frequent or Continuous | PPV, in/sec | 0.003 | 0.000 | 0.000 | 0.000 |
| | | Human Response | not perceptible | not perceptible | not perceptible | not perceptible |
| | | Building Damage Potential | none | none | none | none |

PPV = peak particle velocity, inches per second

Human reactions and building damage potential have different thresholds depending on whether the vibration events are isolated discrete events or frequent/continuous events.

Building damage potential is based on cosmetic (not structural) damage to buildings or structures of various types and ages. Building damage categories are:

Extremely Low = exceeds cosmetic damage threshold for extremely fragile historic buildings, ruins, or monuments

Very Low = exceeds cosmetic damage threshold for fragile buildings
Low = exceeds cosmetic damage threshold for historic buildings
Moderate = exceeds cosmetic damage threshold for older residential buildings
High = exceeds cosmetic damage threshold for newer residential buildings
Very High = exceeds cosmetic damage thresholds for modern commercial and industrial buildings.
Source: BLM 2011 – Table 4.10-7.

As demonstrated by the data in Table 4.12-6, ground vibration from most types of construction equipment used for gen-tie line construction would not be perceptible at distances of 200 feet or more from operating equipment items. Gen-tie line construction activity would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings along the transmission line corridor.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

### Operation and Maintenance

#### *Direct Effects*

**Noise from Facility Operations.** The gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

### Decommissioning

#### *Direct Effects*

**Noise from Decommissioning Activities.** Decommissioning of the gen-tie line under Alternative C would require removal of the transmission cables, removal of the transmission towers and footings, filling of tower footing excavations, and perhaps a limited amount of revegetation along the transmission line corridor. Equipment used for decommissioning would generally be similar to that used for construction. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

**Noise from Traffic Associated with Decommissioning**. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

**Ground Vibrations from Decommissioning Activity.** Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

*Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

***Mitigation Measures***

Mitigation Measure NOI-1, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance. No additional mitigation is necessary.

***Residual Impacts and Unavoidable Adverse Effects***

Implementation of Alternative B, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative B.

### 4.12.12 Alternative C –Separate Transmission Towers within Same ROW

The Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of First Solar's towers would be constructed.

*Direct Effects*

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C because the Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line and would require the same number of towers in a nearly identical alignment. However, under Alternative C the closest residence would be located slightly farther away than under Alternative B (600 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative C would be slightly reduced compared to those described under Alternative B.

*Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

***Operation and Maintenance***

*Direct Effects*

**Noise from Facility Operations.** As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

## *Decommissioning*

### *Direct Effects*

**Noise from Decommissioning Activities.** Decommissioning of the gen-tie line under Alternative C would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

**Noise from Traffic Associated with Decommissioning**. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

**Ground Vibrations from Decommissioning Activity.** Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

### *Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

## *Mitigation Measures*

Mitigation Measure NOI-1, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance. No additional mitigation is necessary.

## *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative C, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative C.

### 4.12.13 Alternative D – Cross-Valley Alignment

Construction, operation, and maintenance of the gen-tie line under Alternative D would be identical to that described for Alternative B, except it would require slightly less temporary and permanent ground disturbance. However, because it would require new access routes for the transmission line, Alternative D would require about 3,700 cubic yards of aggregate.

### Construction

#### *Direct Effects*

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. However, under Alternative D the closest residence would be located farther away than under Alternative B (1,450 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative D would be slightly reduced compared to those described under Alternative B.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

### Operation and Maintenance

#### *Direct Effects*

**Noise from Facility Operations.** As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

### Decommissioning

#### *Direct Effects*

**Noise from Decommissioning Activities.** Decommissioning of the gen-tie line under Alternative D would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

**Noise from Traffic Associated with Decommissioning**. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

**Ground Vibrations from Decommissioning Activity.** Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

*Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

*Mitigation Measures*

Mitigation Measure NOI-1, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance. No additional mitigation is necessary.

*Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative D, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative D.

### 4.12.14 Alternative E – New Cross-Valley Alignment

Construction, operation, and maintenance of Alternative E would be identical to that described for Alternative B, except for it would require slightly less temporary and permanent ground disturbance. However, because it would require new access routes for the transmission line, Alternative E would require about 3,700 cubic yards of aggregate.

*Construction*

*Direct Effects*

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. However, under Alternative E the closest residence would be located farther away than under Alternative B (900 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative E would be slightly reduced compared to those described under Alternative B.

*Indirect Effects*

There are no indirect effects related to noise and vibration for construction.

*Operation and Maintenance*

*Direct Effects*

**Noise from Facility Operations.** As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for O&M.

### *Decommissioning*

#### *Direct Effects*

**Noise from Decommissioning Activities.** Decommissioning of the gen-tie line under Alternative E would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

**Noise from Traffic Associated with Decommissioning**. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

**Ground Vibrations from Decommissioning Activity.** Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

#### *Indirect Effects*

There are no indirect effects related to noise and vibration for decommissioning.

### *Mitigation Measures*

Mitigation Measure NOI-1, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance. No additional mitigation is necessary.

### *Residual Impacts and Unavoidable Adverse Effects*

Implementation of Alternative E, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk during construction and decommissioning, which would result in an unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative E.

### 4.12.15 Cumulative Effects

Cumulative noise or vibration effects would occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of noise or vibration effects on a given area over a longer period of time. The factors of geographic scope and time frame for noise and vibration effects are discussed below.

**Table 4.12-7. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Noise and Vibration | 0.5 mile from the area of noise generation. | Additive construction equipment noise | • Desert Sunlight Solar Farm Project<br>• Silverado Power Solar Project<br>• Desert Sunlight transmission line (Alternatives B and C)<br>• Desert Center II Solar Project (Alternatives D)<br>• Red Bluff Substation (Alternatives B through E)<br>• I-10 (Alternatives B through E) |

*Geographic Scope*

**Noise.** The noise effects of the proposed project and alternatives stem primarily from temporary construction activities. Because noise levels decline rapidly with distance from the noise source, the geographic scope of noise effects is limited to local areas. As demonstrated by the construction noise and traffic noise analyses presented previously, the geographic scope of potentially significant noise effects seldom extends more than 2,500 feet (0.5 mile) from the area of noise generation.

**Vibration.** The ground vibration effects of the proposed project and alternatives stem primarily from temporary construction activities. Ground vibrations dissipate more rapidly than airborne noise levels, limiting the geographic scope of ground vibration effects to the immediate vicinity of the vibration source. As demonstrated by the ground vibration analyses presented previously, the geographic scope of potentially significant ground vibrations extends no more than a few hundred feet from the source of the vibrations.

*Cumulative Effects Analysis*

There would be no cumulative noise or vibration effects under the No Action (Alternative 1) and No Project Alternatives (Alternatives 2, 3, and A) because the solar project (solar facility and gen-tie line) would not be constructed. Any future proposals for use of the site would be subject to separate environmental review. Alternative B would not contribute to cumulative noise effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Current ambient noise conditions represent the cumulative effect of noise generation on a local geographic scale. Except for the I-10 vicinity, existing noise levels in the immediate project vicinity are generally low. There are no known existing ground vibration issues in the project study area. Existing and foreseeable projects and facilities listed in Tables 4.1-1 and 4.1-2 are too far from the proposed solar facility area to create cumulative noise effects in combination with any of the solar facility action alternatives (Alternatives 4 through 7), with the exception of the Desert Sunlight Solar Farm Project (on-site and off-site impacts) located immediately adjacent to and north of the solar facility site and the Silverado Power Solar Project located one mile south of the solar facility site (off-site impacts only, as site is located outside geographic area considered for cumulative noise impacts). Alternative C would have the potential for cumulative site-related noise effects in combination with the Desert Sunlight transmission line, as C would use the same or a slightly wider ROW along the same route. Alternative D would pass through the Silverado Power Solar Project and the Desert Center II Solar Project sites. All gen-tie line alternatives (Alternatives C through E) connect to the Red Bluff Substation, which is associated with the Desert Sunlight Solar Farm Project. As such, these gen-tie line alternatives have the potential for cumulative site-related noise effects in combination with other projects occurring in the project vicinity.

Alternatives C through E all cross I-10 prior to entering the Red Bluff Substation, which is situated just south of I-10. Because there are no noise-sensitive receptors located close to the Red Bluff Substation, cumulative noise and vibration effects from the Red Bluff Substation in combination with gen-tie line construction activities and existing I-10 traffic would result in a minor noise effect. Furthermore, for the Desert Sunlight Project it was determined that construction of the solar facility, gen-tie line, and Red Bluff Substation would increase traffic volumes on I-10 by less than one percent, resulting in a cumulative CNEL increase of about 0.04 dBA (BLM 2011). Similarly, the DHSP solar facility and gen-tie line would have little effect on traffic noise along the I-10 (see Table 4.12-3). Thus, cumulative noise effects related to Alternatives C through E would not be substantial near the Red Bluff Substation. Again, Alternative B would not contribute to cumulative noise effects.

On-site cumulative noise effects would have the potential to occur as a result of the construction if the Desert Sunlight Solar Farm project were to occur at the same time as the DHSP. The construction for the Desert Sunlight Solar Farm Project began in September 2011 with full commercial operation expected by the first quarter of 2015 (First Solar 2011). This schedule would coincide with the DHSP construction. As such, both on-site and off-site (traffic noise) cumulative effects could occur. For on-site noise, the closest receptor to both projects is located 3,600 feet (0.68 mile) west from the Desert Sunlight Solar Farm project area and 8,300 feet (1.6 miles) northwest from the DHSP solar facility. As shown in Table 4.12-2, construction noise during the loudest phase of construction (array post installation) would result in noise levels of 51 dBA Lmax (1 hour) and a CNEL level of 46 dBA at 2,500 feet. At 5,000 feet (one doubling of distance), these noise levels would drop by 6 dB (per the fundamentals of stationary noise sources). The contribution from the DHSP by the time it reaches the closest receptor to both Desert Sunlight Solar Farm Project and DHSP (8,300 feet away) would be about 41 dBA Leq (1-hour maximum) and 36 dBA CNEL. If construction (array post installation) were to be occurring in the western portion of the Desert Sunlight Solar Farm project area at the same time as construction (array post installation) is occurring in the northwestern portion of the DHSP solar facility site, construction noise levels would then have the potential to combine. The Desert Sunlight Solar Farm project was estimated to result in noise levels of 48 dBA Leq (1 hour maximum) and less than 43 dBA CNEL at this same receptor. The combined effect of these two projects, under a conservative scenario, would increase noise levels by less than one decibel which would not be noticeable and not cumulatively substantial. Construction noise levels would remain within Riverside County's normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL). Furthermore, when construction is occurring within a quarter mile of an occupied residence (as identified at the time of construction) the hours of such activities would be limited through mitigation (Mitigation Measure NOI-1) such that noise standards established in local noise ordinances, specifically Riverside County Noise Ordinance No. 847, would be not be exceeded.

Off-site cumulative noise effects would have the potential to occur as a result of the construction of the Desert Sunlight Solar Farm project and/or Silverado Power Solar Project if they were to occur at the same time as the DHSP. However, the Silverado Power Solar Project is not anticipated to begin until mid-2014 and therefore, construction activities would not occur at the same time as the DHSP. For the Desert Sunlight Solar Farm project and the DHSP, construction traffic would be generated along I-10, SR-177 and Kaiser Road. Because construction of these two projects would be occurring at the same time, cumulative traffic noise effects could occur. Existing traffic volumes on I-10 (currently 21,000 to 23,000 vehicles per day with 40 percent truck traffic) would need to be doubled to cause even a 3 dBA increase in noise levels, which would not occur as a result of these two projects. Both individually and cumulatively the increase in traffic volume from these projects would have a negligible effect on traffic noise levels along I-10; therefore, cumulative effects would not be substantial.

Cumulative traffic noise along SR-177 and Kaiser Road in the Lake Tamarisk area were estimated, as shown in Table 4.12-8.

**Table 4.12-8. Modeled 1-Hour Leq/CNEL Noise Levels from Cumulative Construction Traffic**

| Location | Distance from Road Centerline (feet) | Existing 1-Hour Leq / CNEL (dBA) | Existing + Proposed Project + Desert Sunlight 1-Hour Leq / CNEL (dBA) | Change from Existing 1-Hour Leq / CNEL (dBA) |
|---|---|---|---|---|
| SR-177 South of Kaiser Road | 50 | 70.9 / 72.0 | 71.6 / 73.0 | 0.7 / 1.0 |
| | 100 | 67.8 / 68.9 | 68.5 / 69.9 | 0.7 / 1.0 |
| | 250 | 63.8 / 64.9 | 64.5 / 65.9 | 0.7 / 1.0 |
| | 500 | 60.8 / 61.9 | 61.5 / 62.9 | 0.7 / 1.0 |
| | 750 | 59.1 / 60.1 | 59.8 / 61. | 0.7 / 1.1 |
| | 1,000 | 57.8 / 58.9 | 58.5 / 59.9 | 0.7 / 1.0 |
| Kaiser Road South of Lake Tamarisk | 50 | 61.9 / 62.2 | 66.0 / 67.5 | 4.1 / 5.3 |
| | 100 | 58.8 / 59.1 | 62.9 / 64.4 | 4.1 / 5.3 |
| | 250 | 54.9 / 55.1 | 58.9 / 60.4 | 4.0 / 5.3 |
| | 500 | 51.8 / 52.1 | 55.9 / 57.4 | 4.1 / 5.3 |
| | 750 | 50.1 / 50.3 | 54.1 / 55.6 | 4.0 / 5.3 |
| | 1,000 | 48.8 / 49.1 | 52.9 / 54.4 | 4.1 / 5.3 |
| Kaiser Road North of Lake Tamarisk | 50 | 52.4 / 52.3 | 64.0 / 66.0 | 11.6 / 13.7 |
| | 100 | 49.3 / 49.3 | 60.9 / 62.9 | 11.6 / 13.6 |
| | 250 | 45.4 / 45.3 | 56.9 / 58.9 | 11.5 / 13.6 |
| | 500 | 42.3 / 42.3 | 53.9 / 55.9 | 11.6 / 13.6 |

**Table 4.12-8. Modeled 1-Hour Leq/CNEL Noise Levels from Cumulative Construction Traffic**

| Location | Distance from Road Centerline (feet) | Existing 1-Hour Leq / CNEL (dBA) | Existing + Proposed Project + Desert Sunlight 1-Hour Leq / CNEL (dBA) | Change from Existing 1-Hour Leq / CNEL (dBA) |
|---|---|---|---|---|
|  | 750 | 40.6 / 40.5 | 52.2 / 54.2 | 11.6 / 13.7 |
|  | 1,000 | 39.3 / 39.3 | 50.9 / 52.9 | 11.6 / 13.6 |

Source: See Appendix N noise calculations.

Along SR-177 south of Kaiser Road, the Desert Sunlight Solar Farm project would generate up to 225 AADT with 5.7 percent medium trucks and 9.5 percent heavy trucks (BLM 2011 – Appendix E2, Table E2-1, Alt 1&2, 2012). Combined with existing traffic and that generated by the DHSP (assuming peak construction period), noise levels would increase by about 0.7 dBA 1-hour Leq and 1 dBA CNEL from existing conditions, which would not be a noticeable increase. At 100 feet from the centerline of SR-177, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at about 1,000 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

Along Kaiser Road south of Lake Tamarisk, the Desert Sunlight Solar Farm project would generate up to 222 AADT with 24.8 percent medium trucks and 21.5 percent heavy trucks (BLM 2011 – Appendix E2, Table E2-1, Alt 1&2, 2012). Combined with existing traffic and that generated by the DHSP (assuming peak construction period), noise levels would increase by about 4 dBA 1-hour Leq and 5 dBA CNEL from existing conditions, which would be a subtle, noticeable increase over existing conditions. Along Kaiser Road north of Lake Tamarisk, the combination of Desert Sunlight Solar Farm project with existing traffic and traffic generated by the DHSP (assuming peak construction period) would result in a noise level increase of about 12 dBA 1-hour Leq and 14 dBA CNEL from existing conditions. This would result in a substantial increase over existing conditions and sound like a doubling of existing noise levels. At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at about 280 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

The timing for approval and construction of the Desert Center II Solar is not known, but could potentially overlap with part of the construction period for the DHSP. Construction of the Silverado Power Solar Project is not anticipated to begin until mid-2014; therefore, construction activities would likely not occur at the same time as the DHSP. Gen-tie line Alternatives C through E would cross these projects; however, construction would be moving linearly along the transmission line alignment and would not be in a given area for more than a few days to a few weeks. The probability of construction activities to be occurring at the same time and in close enough proximity (within 2,500 feet) to combine and result in a cumulative effect is low. A substantial cumulative noise effects from gen-tie construction would not occur. Again, Alternative B would not contribute to a cumulative noise effect.

Since the geographic scope of potential ground vibration effects is limited to a distance of a few hundred feet from the source of the vibrations, and no noise- or vibration-sensitive land uses are within that distance from both the DHSP and one or more of the other solar energy projects, no cumulative vibration effects from on-site construction activities would be expected to occur.

Due to the limited geographic scope of potential noise and ground vibration effects (as discussed above), operation of the proposed project would not contribute to adverse long-term increases in noise or vibration levels in the area, as operational noise levels are not cumulatively considerable. Because no substantial operational noise or vibration increases would result from the proposed project, it would be consistent with the local noise regulations and would not result in a substantial cumulative effect.

### 4.12.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

*CEQA Significance Criteria*

The significance criteria listed below were generated based on the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed action or alternatives would result in significant impacts under CEQA related to noise. The proposed project and alternatives would result in a significant impact related to noise if they would:

NZ-1 Generate noise levels that pose a risk of hearing damage for persons living or working at off-site locations (90 dBA as a time-weighted 8-hour average or peak noise levels above 115 dBA).

NZ-2 Expose residents or visitors to on-site noise levels that exceed land use compatibility standards or criteria established in the noise element of the Riverside County General Plan (see Table 3.12-2 in the Noise and Vibration section of Chapter 3).

NZ-3 Cause off-site noise levels to exceed land use compatibility standards or criteria established in the local general plan (see Table 3.12-2 in the Noise and Vibration section of Chapter 3).

NZ-4 Create a long-term impact on noise-sensitive land uses by increasing long-term ambient CNEL levels by 10 dBA or more, even if the resulting noise level is below applicable land use compatibility standards.

NZ-5 Generate noise levels that exceed standards established by local ordinances or by State or federal agency regulations (see Table 3.12-4 and associated text discussions in the Noise and Vibration section of Chapter 3).

NZ-6 Expose people to excessive ground-borne vibration or ground-borne noise levels (see Table 3.12-5 in the Noise and Vibration section of Chapter 3).

NZ-7 Generate ground-borne vibration levels that pose a risk of cosmetic damage to on-site or off-site buildings (see Table 3.12-5 in the Noise and Vibration section of Chapter 3).

For the DHSP, the following criteria were determined to be inapplicable or to result in no impact:

- Expose on-site workers to noise levels that exceed occupational safety standards (90 dBA as a time-weighted 8-hour average or peak noise levels above 115 dBA).
- Expose residents to airport or private airstrip-related noise levels above a CNEL of 65 dBA.

Occupational noise exposure is governed by federal and State regulations. The California Divisions of Occupational Safety and Health (Cal/OSHA) administers industrial safety regulations in California. Cal/OSHA regulations establish a time-weighted noise exposure limit of 90 dBA averaged over 8 hours (California Code of Regulations, Title 8, Article 105). Noise source controls, administrative procedures, or worker hearing protection must be provided if worker noise exposure would exceed the 90 dBA limit. EnXco would be expected to follow Cal/OSHA requirements for construction worker noise exposure. Consequently, worker noise exposure issues are not discussed further under any of the alternatives.

There are two private airstrips in the general project vicinity. Eagle Mountain Airstrip is about 3.6 miles northwest of the proposed solar facility site and Desert Center Airport is about 3 miles south-southeast of the project site. Both airstrips have very low use levels. Desert Center Airport used to be a public airfield, but has been sold to the developer of the Chuckwalla Valley Raceway. The Desert Center Airport is now operated as a private airstrip. The Riverside County Airport Land Use Compatibility Plan shows that the 55 dBA CNEL contour for the Desert Center Airport is confined to the immediate runway area (Riverside County 2004 – Map DC-3). No airfield noise contours have been developed for the Eagle Mountain Airstrip, but the comparable low use values for that facility suggest that the 55 dBA CNEL noise contour would similarly be limited to the immediate runway area. None of the project alternatives would create residential land uses, and all project features are outside the airfield properties. Consequently, airport-related noise issues are not discussed further under any of the alternatives.

### *CEQA Significance Determination*

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts from project-related noise would not occur.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

**Alternative 4.** Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at the solar facility site. Maximum 1-hour Leq noise levels associated with construction activities would be about 83 dBA at the solar facility property line (100 feet from construction activity) and about 43 dBA at the nearest identified occupied residence (6,500 feet away). Hearing protection standards adopted by Cal/OSHA are an 8-hour time-weighted average of 90 dBA and a peak noise level of 115 dBA. Noise from construction, operation, and decommissioning of the solar facility under Alternative 4 would not pose a risk of hearing damage at off-site locations, and thus would be a less-than-significant impact (CEQA significance criterion NZ-1).

The solar facility site would not contain any noise-sensitive land uses. Maximum on-site CNEL increments from construction activity would be about 78 dBA at a distance of 100 feet from active construction operations, which is within Riverside County's conditionally acceptable range for industrial and utility land uses (see Table 3.12-2; 70-80 dBA CNEL). Noise levels generated during operations and decommissioning activities would be less than those estimated for construction. Consequently, construction, operation, and decommissioning of the solar facility site would not create on-site noise-related land use compatibility problems, and would have a less-than-significant impact (CEQA significance criterion NZ-2).

For the residence closest to the solar farm site (located 6,500 feet away), maximum CNEL increments from construction activity would be less than 46 dBA (see Table 3.12-2, array post installation), which is within Riverside County's normally acceptable range for rural residential land uses (see Table 3.12-2; up to 60 dBA CNEL). Construction-related traffic would increase noise levels along SR-177 and Kaiser Road. Along SR-177, existing noise levels of 72 dBA CNEL are already above the Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). The addition of the proposed project would increase noise levels by about less than 1 dBA, which would not be noticeable and not significant. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase); however, along Kaiser Road north of Lake Tamarisk Road there would be a substantial increase (>10 dBA increase). The maximum noise levels at 50 feet from the centerline of Kaiser Road north of Lake Tamarisk would be 66 dBA CNEL, and south of Lake Tamarisk would be 64 dBA CNEL. Therefore, at 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

Operational noise levels from the solar facility would also be within Riverside County's normally acceptable range for rural residential land uses at the property line. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the solar facility site would not create noise-related land use compatibility problems at off-site locations, and would have a less-than-significant impact (CEQA significance criterion NZ-3).

While overall construction activities would last for about two years, the majority of on-site construction activities at the solar facility site would be well over 6,500 feet from the nearest residence east-southeast of the site and 1.5 miles from other identified residences. Even then, only a small portion of the overall construction activity would occur within 6,500 feet of the nearest residence. Consequently, on-site construction activities for the solar farm would not constitute long-term sources of noise level increases at noise-sensitive land uses. Construction-related traffic would increase CNEL levels along Kaiser Road for a period of about two years. CNEL levels would be increased by up to 11.5 dBA, which would be a significant increase over ambient noise conditions resulting in a significant and unavoidable impact (CEQA significance criterion NZ-4). Operational noise levels from the solar facility would not increase existing CNEL levels at any noise-sensitive land uses. Consequently, operational noise levels from the solar facility would be a less-than-significant (CEQA significance criterion NZ-4). Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from solar facility decommissioning would be a less-than-significant impact (CEQA significance criterion NZ-4).

Construction and decommissioning activities for the solar facility site when located near inhabited dwellings would be limited to daytime hours pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Consequently, construction and decommissioning activities would be exempt from the Riverside County noise ordinance and noise from construction activity at the solar facility site would be a less-than-significant impact (CEQA significance criterion NZ-5). The on-site substation would be located over 1.25 miles from the closest existing residence. Daytime noise generation from the on-site substation is expected to be 40 dBA at 1,535 feet (BLM 2011). Nighttime noise generation from the on-site substation is expected to be 40 dBA at a distance of 200 feet and 35 dBA at a distance of 353 feet (BLM 2011). These noise levels would meet the Riverside County stationary source exterior noise limit of 65 dBA, 10-minute Leq and Riverside County Ordinance No. 847, which limits noise at rural residential properties to 45 dBA Lmax. Therefore, operational noise levels at the solar facility site would comply with local standards and impacts would be less than significant (CEQA significance criterion NZ-5).

Ground vibrations from construction or decommissioning activities would not be perceptible at off-site locations. Operational activities at the solar facility would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar facility construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-6).

Ground vibrations from construction or decommissioning activities would pose no risk of cosmetic damage to any existing buildings. Operational activities at the solar facility would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar facility construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-7).

On-site construction noise from the proposed project would not be cumulatively considerable; however, off-site (traffic) construction noise would be significant, and when combined with the Desert Sunlight Solar Farm Project would result in a cumulatively significant and unavoidable impact. Noise impacts related to the operations of the proposed project and vibration impacts would not be cumulatively considerable and would not result in significant cumulative impacts.

**Alternative 5.** Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site, in an area located away from any identified residences.

Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

**Alternative 6.** Similar to Alternative 5, Alternative 6 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. The area to be developed continues to be those areas located nearest identified residences. Furthermore, construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 6 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 6. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 6 would be the same as analyzed for Alternative 4. Similarly, operational noise under Alternative 6 would be essentially the same as that discussed for Alternative 4. Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

**Alternative 7.** Similar to Alternative 6, Alternative 7 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. The area to be developed continues to be those areas located nearest identified residences. Furthermore, construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 7 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 7. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 7 would be the same as analyzed for Alternative 4. Similarly, operational noise under Alternative 7 would be essentially the same as that discussed for Alternative 4. Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

**Alternative A.** Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no noise or vibration impacts under criteria NZ-1 through NZ-7 related to construction, operations and maintenance, or decommissioning would occur. Alternative A would not contribute to cumulative impacts.

**Alternative B.** Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities for the gen-tie line. Maximum 1-hour Leq noise levels associated with construction activities would be 84 dBA at a distance of 100 feet from active construction work areas and about 69 dBA at the nearest existing residences (500 feet away). Maximum average noise levels over a construction day would be 80 dBA at a distance of 100 feet from active construction work areas and about 65 dBA at the nearest residences (500 feet away). Hearing protection standards adopted by Cal/OSHA are an 8-hour time-weighted average of 90 dBA and a peak noise level of 115 dBA. Noise from construction, operation, and decommissioning of the gen-tie line under Alternative B would not pose a risk of hearing damage at off-site locations, and thus would be a less-than-significant impact (CEQA significance criterion NZ-1).

The gen-tie line corridor itself would not contain any noise sensitive land uses. Maximum CNEL increments from construction activities would be about 77 dBA at the edge of the gen-tie line corridor (100 feet distance), which is within Riverside County's conditionally acceptable range for industrial and utility land uses (see Table 3.12-2; 70-80 dBA CNEL). There would be no persistent operational noise from the gen-tie line, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). These noise levels are within Riverside County's normally acceptable range for industrial and utility land uses. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the gen-tie line under Alternative B would not create on-site noise-related land use compatibility problems, and would have a less-than-significant impact (CEQA significance criterion NZ-2).

For the residences closest to the gen-tie line corridor (500 feet away), maximum CNEL increments from construction activities would be about 62 dBA, which is within Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). Construction activities are expected to last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Construction-related traffic would increase noise levels along SR-177 and Kaiser Road. Along SR-177, existing noise levels of 72 dBA CNEL are already above Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). The addition of the proposed project (including the gen-tie line) would increase noise levels by less than 1 dBA, which would not be noticeable and not significant. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase); however, along Kaiser Road north of Lake Tamarisk Road there would be a substantial increase in traffic noise levels (>10 dBA increase). The maximum noise levels at 50 feet from the centerline of Kaiser Road north of Lake Tamarisk would be 66 dBA CNEL, and south of Lake Tamarisk would be 64 dBA CNEL. Therefore, at 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

There would be no persistent operational noise from the gen-tie line, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). The closest residences are located 500 feet away, such that corona noise would be indiscernible from background ambient noise. These noise levels are also within Riverside County's normally acceptable range for rural residential land uses (see Table 3.12-2; up to 60 dBA CNEL). Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the gen-tie line under Alternative B would not create noise-related land use compatibility problems at off-site locations, and would have a less-than-significant impact (CEQA significance criterion NZ-3).

Construction activities are expected to last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Consequently, construction activity would be near any given location for only a few weeks of the overall construction period. Consequently, on-site construction activities for the gen-tie line under Alternative C would not constitute long-term sources of noise level increases at noise-sensitive land uses (CEQA significance criterion NZ-4). Construction-related traffic (solar facility and gen-tie line) would increase CNEL levels along Kaiser Road for a period of about two years. CNEL levels would be increased by up to 11.5 dBA, which would be a significant increase over ambient noise conditions resulting in a significant and unavoidable impact (CEQA significance criterion NZ-4). The gen-tie line would have no persistent operational noise generation, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. The closest residences are located 500 feet away, such that corona noise would be indiscernible from background ambient noise; operational noise impacts would be less than significant (CEQA significance criterion NZ-4). Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from decommissioning the gen-tie line would result in a less-than-significant impact (CEQA significance criterion NZ-4).

Construction activity for the gen-tie line under Alternative B would be limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Consequently, construction activities would be exempt from the Riverside County noise ordinance and noise impacts from construction activities along the gen-tie line, which would involve stringing only, would be less than significant (CEQA significance criterion NZ-5).

Ground vibrations from construction or decommissioning activities would not be perceptible at off-site locations. Operational activities at the gen-tie line would not generate meaningful ground vibrations. Consequently, ground vibration impacts from gen-tie line construction (stringing only under Alternative B), operation, and decommissioning would be less than significant (CEQA significance criterion NZ-6).

Ground vibrations from construction or decommissioning activities would pose no risk of cosmetic damage to any existing buildings. Operational activities at the gen-tie line would not generate meaningful ground vibrations. Consequently, ground vibration impacts from gen-tie line construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-7).

Alternative B would not contribute to cumulative noise effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

**Alternative C.** Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C. However, under Alternative C the closest residence would be located farther away than under Alternative B (600 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative C would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative on-site construction noise, which includes the solar facility and gen-tie line, from the proposed project would not be cumulatively considerable; however, off-site (traffic) construction noise would be significant, and when combined with the Desert Sunlight Solar Farm project would result in a cumulatively significant and unavoidable impact. Noise impacts related to the operations of the gen-tie line and vibration impacts would not be cumulatively considerable and would not result in significant cumulative impacts.

**Alternative D**. Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. However, under Alternative D the closest residence would be located farther away than under Alternative B (1,450 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative D would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative impacts would also be identical to Alternative C.

**Alternative E.** Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. However, under Alternative E the closest residence would be located farther away than under Alternative B (900 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative E would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative impacts would also be identical to Alternative C.

# Section 4.13

## Public Health and Safety

## 4.13 PUBLIC HEALTH AND SAFETY

### 4.13.1 Methodology for Analysis

County maps were reviewed to determine the proposed project's proximity to schools and airports. In addition, the risk of fire was evaluated based on hazard maps and assessments provided in the County of Riverside General Plan (2003). The County of Riverside General Plan was also reviewed for requirements for Emergency Response Plans, hazard management plans, and wildfire potential. A contaminated sites database search was performed in 2010 for the adjacent Desert Sunlight Solar Farm (DSSF) project, and the area of inquiry included the site of the proposed project and alternatives.

### 4.13.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.13.6, as appropriate, to minimize impacts to public health and safety to the extent feasible. Mitigation measures encompass the substance and intent of the AMs, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures required for public health and safety impacts and the following AMs, the mitigation measures take precedence.

**AM HAZ-1** **Spill containment and clean-up kits.** Spill containment and clean-up kits shall be kept on site. Appropriate spill containment and clean-up kits shall be kept on site during construction and maintained during the operation of the Solar Farm and Gen-Tie Line.

**AM HAZ-2** **Hazardous Materials Management Plan**. In accordance with the Emergency Planning & Community Right to Know Act, the Applicant shall supply the local emergency response agencies with a Hazardous Materials Management Plan and an associated emergency response plan and inventory specific to the site. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

**AM HAZ-3** **Best Management Practices (BMPs) for hazardous materials**. During construction of the solar facility and gen-tie line, BMPs for handling, storing, and disposing of hazardous materials and waste shall be followed.

**AM HAZ-4** **Spill Prevention Control and Countermeasures (SPCC) Plan**. A SPCC Plan will be developed and implemented that would identify primary and secondary containment for oil products stored on site as well as training in spill management in the event of an unexpected release. The Applicant shall prepare the plan for approval by the BLM. The Applicant shall be responsible for implementing the approved plan.

**AM HAZ-5** **Environmental Health and Safety Plan**. The Applicant shall develop an Environmental Health and Safety Plan for the construction and operation of the project to ensure it includes all activities and compliance with all local, state and federal regulatory requirements. Illness and Injury Prevention Programs will be developed for construction and operation. The Applicant shall prepare the plan for approval by the BLM. The Applicant shall be responsible for implementing the approved plan.

**AM HAZ-6** **Emergency Response and Inventory Plan**. The Applicant shall provide the County of Riverside with a project-specific Emergency Response and Inventory Plan before construction begins. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

**AM HAZ-7** **Fire Protection and other requirements**. Project facilities will be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health and safety requirements. In compliance with County of Riverside requirements, a project-specific fire prevention plan for both construction and operation of the solar facility and gen-tie line will be completed prior to initiation of construction. The fire protection plan will be approved by the BLM and provided to Riverside County for review and comment.

**AM HAZ-8** **Fire Prevention Plan**. A project-specific fire prevention plan will be in place during construction, operation and decommissioning of the project. This plan will comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park.

**AM HAZ-9** **Emergency Response Plan**. An emergency response plan and site security plan will be completed for the project facilities by qualified professionals. These plans will be developed in accordance with the BLM requirements

**AM HAZ-10** **Decommissioning Plan**. When permanent closure is appropriate, a decommissioning plan would be developed and submitted to the BLM for review and approval. The following strategy would be taken:

- Analyze alternatives other than full restoration of the site (for instance, removal of old facilities and upgrading to newer solar technology)
- Use industry standard demolition means and methods to decrease personnel and environmental safety exposures by minimizing time and keeping personnel from close proximity to actual demolition activities to the extent practical
- Plan components of decommissioning to ensure personnel and environmental safety are maintained while efficiently completing the work
- Provide for recycling the components of the plant: metal, panels, concrete; and proper disposal of all other materials
- Remove all residual materials and chemicals from the site prior to demolition for reuse at other facilities or disposal at licensed facilities

- Demolition of below-ground facilities to a depth required for restoration of the native habitat
- Soils clean-up, if needed, particularly at locations where hazardous materials were used or stored to ensure that clean closure is achieved

Restore the lines and grades in the disturbed area to match the natural gradients of the site and re-establish native vegetation in the disturbed areas

### 4.13.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.13.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.13.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.13.6 Alternative 4 – Proposed Solar Project

#### *Construction*

Construction of Alternative 4 would require clearance of 1,208 acres. Development of the solar facility site is described in Section 2.4 (Alternative 4). In addition to the solar array, other permanent land uses include the operation & maintenance (O&M) facilities, on-site substation and switchyard.

#### *Direct Effects*

**Hazardous Materials.** Construction of Alternative 4 would require the use, storage, and disposal of some hazardous and potentially hazardous materials, such as those shown in Table

4.13-1. Hazardous or flammable materials used during construction would consist primarily of small volumes of petroleum hydrocarbons and their derivatives (e.g., fuels, oils, lubricants, and solvents) required for the operation of construction equipment. These materials would be those routinely associated with the operation and maintenance of heavy construction equipment or other support vehicles, such as gasoline, diesel fuels, and hydraulic fluids. Specific hazardous materials that would be transported to the site and be present on site during construction are listed in Table 4.13-1. Also during the construction phase, large quantities of transformer oil would be transported to the site for use in the substation and power block transformers. Hazardous materials are discussed in more detail in Sections 3.21 and 4.21 (Solid and Hazardous Wastes).

**Table 4.13-1. Hazardous Materials/Petroleum Products Stored on Site During Construction**

| Hazardous Material | Use |
|---|---|
| Diesel Fuel | Construction Equipment and Vehicles |
| Gasoline | Construction Equipment and Vehicles |
| Motor Oil | Construction Equipment and Vehicles |
| Hydraulic Fluids and Lubricating Oils | Construction Equipment and Vehicles |
| Solvents and Adhesives | PV Module Assembly |
| Soil Stabilizers | Roads and PV Assembly Areas |
| Mineral Oil | Transformers |
| BLM-Approved Herbicide | On an As-Needed Basis for Invasive Weeds |
| Batteries, paints, thinners, and cleaning solvents | Construction Equipment and Vehicles |

The DHSP may use a variety of PV technologies, including copper indium gallium cyanide panels, which are manufactured using the toxic elemental metal cadmium. Chemicals within PV modules are highly stable; even if the modules become broken or damaged during construction, these substances would not mobilize into the environment except under extremely rare conditions. A fire at the Alternative 4 site during construction could release chemicals from installed PV panels; however, fires are unlikely to occur because of the lack of fuel to support a sustained wildfire. Grass fires are the most likely fire exposure for ground-mounted PV systems, and these fires tend to be short-lived. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize panel constituents. Mitigation Measure (MM) FIRE-1 would also reduce potential effects from related fire risks.

In order to control weeds, the proposed project would utilize BLM-approved herbicides as appropriate. As described in Chapter 1, the DHSP EIS is tiered to the BLM's 2007 *Vegetation Treatments Using Herbicide Programmatic Final Environmental Impact Statement* (Herbicide PFEIS). The proposed project would use only the approved herbicides included in Table 2 (Herbicide Application Matrix) in the Integrated Weed Management Plan for the DHSP included in Appendix C10. Only application methods addressed in the Herbicide PFEIS would be used and all use would be in accordance with U.S. EPA label instructions and would be overseen by a certified herbicide applicator. MM-PHS-9 (use licensed herbicide applicator) includes specific guidelines for herbicide applicators and herbicide application. By complying with the measures and standard operating procedures in the Herbicide PFEIS and MM-PHS-9, the use of herbicides for the proposed project would not adversely affect public health and safety. The project operator would be required to strictly adhere to all relevant regulations regarding handling hazardous or potentially hazardous materials. In addition, MM-PHS-6 (proper disposal or recycling of PV panels and other infrastructure) would ensure that project components are disposed of in a manner that does not pose risks to human health or the environment. Therefore, the use of PV panels and other project components would not have any adverse, unavoidable effects on public health and safety.

**Existing Contamination.** Alternative 4 would not mobilize existing contaminants in groundwater or soil, or expose workers to contaminated or hazardous materials at levels in excess of those permitted by federal and state law. There are no known previously contaminated sites of concern located in the project study area. The Phase I Environmental Site Assessment for the DSSF project, located just north of the solar facility site, indicates that the entire Chuckwalla Valley area was historically used as a military training facility, and that there is potential for munitions and explosives of concern (MEC) to be present on portions of the site. As a result of historical military training activities associated with Desert Training Center/California-Arizona Maneuver Area, there is also the potential for MEC to occur on portions of the Alternative 4 footprint. Project construction personnel could sustain injuries if MECs were encountered on the project site during construction. MM-PHS-8 (munitions plan) would reduce impacts from personnel encountering MEC during construction by requiring the Applicant to gather available information on potential onsite MECs and ensuring that all construction workers receive MEC-related safety training.

**Airports.** Alternative 4 would have no aboveground structures that would increase safety hazards to the two private air strips. Therefore, construction of the project would not create safety hazards for the one small private air strip or the special use airport in the vicinity. No effects would occur.

### *Indirect Effects*

**Emergency Response.** Because there is so little development in the area currently, construction of Alternative 4 has the potential to overburden existing emergency response capacity and impair implementation of County of Riverside's Emergency Operations Plan (Riverside 2006). The nearest fire station to Alternative 4 is Lake Tamarisk, which has only four staff (Baker 2011). MM-PHS-4 (Environmental Health and Safety Plan) includes development of injury prevention programs and training that would reduce effects related to emergency response. In addition, MM-PHS-5 (Emergency Response and Inventory Plan) and MM-FIRE-1 would ensure that project personnel are trained to appropriately report and respond to emergencies. MM-PHS-7 requires the Applicant to create a fire services agreement with the Riverside County Fire Department/CAL FIRE and BLM in order to ensure adequate staffing or volunteers to respond to emergencies. These measures would ensure that Alternative 4 would not have unavoidable adverse effects related to emergency response.

### *Operation and Maintenance*

Operation and maintenance activities include vegetation treatment for removal of weeds, torque electrical fitting, cleaning switch gear, calibration of protective relays, fire protection system test and annual certification, fuse swapping, and testing ground fault detection and power quality as described in Section 2.4.5.

*Direct Effects*

**Hazardous Materials/Existing Contamination.** During the operation and maintenance phase of the project, fewer hazardous materials would be used than during construction, but the types of hazardous materials would be the same. Similar to the construction phase of the project, the operational phase would involve some risk of exposing workers or the public to hazardous materials. With the implementation of MM-PHS-1 through MM-PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels), there would be no unavoidable adverse effects on public health and safety.

**Airports.** Alternative 4 would not have aboveground structures that would increase the safety hazards to the private air strip or the special use airport. Operation of the project would not impact either the private air strip or the special use airport. No adverse effects would occur.

**Physical Hazards to Personnel and the Public.** The Alternative 4 site is not subject to substantial flooding that could damage panels and result in a public safety hazard. As discussed in Section 4.20, Alternative 4 is not located on a FEMA 100-year floodplain, although the County of Riverside designates the area as having "possible but undetermined flood hazards." Section 4.20 also concludes that construction would not substantially increase the amount of damage to the area that could result from flooding. Furthermore, mitigation measures, such as detention and retention of storm water flows and use of elongated posts in risk areas, would reduce the potential for damage to the project from flooding.

*Indirect Effects*

**Emergency Evacuation and Emergency Response Plan.** Although there would be fewer workers at the project site during operation, Alternative 4 could still potentially overburden local emergency response capacity. As during construction, implementation MM-PHS-4 (Environmental Health and Safety Plan), MM-PHS-5 (Emergency Response and Inventory Plan), and MM-FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM-PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to respond to emergencies. These measures would ensure that the project would not have unavoidable adverse effects related to emergency response.

*__Decommissioning__*

At the end of the life of Alternative 4, above-ground structures would be removed and demolished, and the site would be returned to its original condition.

*Direct Effects*

**Hazardous Materials/Existing Contamination.** Waste would be generated as part of decommissioning. In addition, improper disposal or recycling of panels or other project components could result in long-term outdoor storage of metal, lead soldered, mineral oil-containing, and petroleum-lubricated parts (such as tracking motors and articulating support structures) and may result in contaminated runoff that could pose a hazard to people and the environment.

MM-PHS-6 ensures proper recycling and disposal of photovoltaic panels and other infrastructure, including support structures, treated wood poles, transformers, and inverters. Final disposal of project infrastructure would also be required to be in compliance with existing laws and regulations governing the recycling and disposal of materials, including hazardous materials, at the time of decommissioning. With the implementation of this measure in addition to MM-PHS-1 through MM-PHS-5, there would be no unavoidable adverse effects on public health and safety related to hazardous materials/waste.

**Airports.** As discussed for construction, the decommissioning of the project would not impact either the private air strip or to the special use airport. All facilities associated with the project would be removed. No effects would occur.

***Indirect Effects***

**Emergency Response.** Project decommissioning could potentially overburden local emergency response capacity. As during construction, implementation of MM-PHS-4 (Environmental Health and Safety Plan), MM-PHS-5 (Emergency Response and Inventory Plan), and MM-FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM-PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to respond to emergencies. These measures would ensure that the project would not have unavoidable adverse effects related to emergency response.

***Mitigation Measures***

MM-PHS-1 through MM-PHS-5, and MM-FIRE-1 below build on and supplement the Applicant Measures in Section 4.13.2. MM-PHS-6 has been added to address recycling of solar panels and other project components. MM-PHS-7 addresses a fire services agreement, MM-PHS-8 has been added to reduce the potential risks of MECs, and MM-PHS-9 addresses herbicide application requirements.

**MM PHS-1** **A Hazardous Materials Management Plan shall be prepared.** In accordance with the Emergency Planning & Community Right to Know Act, the Applicant shall supply the local emergency response agencies with a Hazardous Materials Management Plan and an associated emergency response plan and inventory specific to the site. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

The plan shall include:

1. Introduction to the plan that identifies business activities;
2. Identification of owner/operator with contact information;
3. A hazardous materials inventory statement listing all hazardous materials used during construction and operation;
4. A facility map; and
5. An emergency response/contingency plan that includes an evacuation plan, emergency contacts, emergency resources, any special arrangements with emergency responders, emergency procedures, post-incident reporting/recording responsibilities; earthquake vulnerability inspection or isolation; emergency

equipment; and an employee training plan that documents training areas and capabilities.

**MM PHS-2** **Best Management Practices (BMPs) for hazardous materials shall be implemented.** During construction of the solar project and gen-tie line, BMPs for handling, storing, and disposing of hazardous materials and waste shall be followed.

BMPs shall include:

1. Keeping materials in their original containers with the original manufacturer's label and resealed when possible;
2. Avoiding excessive on-site inventories of chemicals; procure and store only the amounts needed for the job;
3. Following manufacturer's recommendation for proper handling and disposal;
4. Conducting routine inspections to ensure that all chemicals on site are being stored, used, and disposed of appropriately;
5. Performing timely maintenance on vehicles/equipment that are leaking oil or other fluids, and placing drip plans under the leak when the vehicle/equipment is parked prior to the maintenance event;
6. Performing fueling of vehicles and equipment in locations that are protected from spillage onto exposed ground surface
7. Ensuring that all personnel dealing with hazardous materials are properly trained in the use and disposal of these materials in accordance with local, state and federal regulations; and
8. Maintaining Material Safety Data Sheets (MSDS) available on the site for use during project construction and operation.

**MM PHS-3** **A Spill Prevention Control and Countermeasures (SPCC) Plan shall be prepared.** An SPCC shall be developed and implemented identifies primary and secondary containment for oil products and other hazardous materials stored on site as well as training in spill management in the event of an unexpected release. The Applicant shall be responsible for implementing the approved plan. Prior to construction permit issuance, the Applicant shall submit to BLM for review and approval a site-specific spill response plan with the following elements:

1. General information:
   a. Name and location of facility
   b. Description of facility operations
   c. General manager and emergency coordinator names and phone numbers (home, work, pager, and mobile contact information)
   d. Description of what is stored at the facility (contents and volume)

   e. Site diagram showing:
      i. Hazardous materials storage areas
      ii. Drains (storm and sanitary)
      iii. Surface waters
      iv. Buildings
      v. Surrounding neighborhood

2. Prevention: A description of prevention measures to be taken at the project site, such as secondary containment, employee training, and proper storage. Products shall be kept in their original containers with the original manufacturer's label and resealed when possible, and the manufacturer's recommendation for proper disposal shall be followed. The site superintendent shall perform routine inspections to ensure that all materials onsite are being stored and disposed of in an appropriate fashion.

3. Preparedness: A description of the planned onsite equipment for spill response and its location. Spill clean-up materials and equipment appropriate to the type and quantity of hazardous materials shall be located onsite and personnel made aware of their location. Key employees shall be trained in spill response procedures in accordance with local, State, and federal regulations. Material safety data sheets (MSDSs) shall be kept onsite during construction and operation of the solar farm. Spill response materials including brooms, dust pans, mops, rags, gloves, absorbent pads/pillows/socks, sand/absorbent litter, sawdust, and plastic and metal containers will be kept onsite. The spill response plan shall also specify:

   a. The Applicant's health and safety training plan, Department of Transportation–required training, and spill response training

   b. Local, State, and federal regulatory agency reporting procedures and phone numbers, as well as emergency response contractor contact information and local hospital contact information

4. Response Procedures: An outline of emergency response procedures, including physical spill clean-up procedures, reporting requirements, and stabilization techniques. Spill guidelines shall include the following:

   a. All spills shall be immediately cleaned up upon discovery. Spills will be reported to the BLM in writing within 24 hours, and by phone immediately.

   b. The spill area shall be kept well ventilated and personnel shall wear the appropriate protective clothing to prevent injury when cleaning up a spill

   c. Spills of hazardous materials shall be reported to the appropriate local, State, and federal authorities and/or regulatory agencies as required by law

   d. All vehicles leaking oil or fluids shall be scheduled for maintenance, and drip plans shall be placed under the leak when parked prior to the maintenance event

e. All spill and clean up material will be removed from site as soon as can be arranged and taken to a legal disposal facility. This paperwork will be submitted to the BLM.

5. A description of spill prevention and response measures for transportation of substation transformer oil to and from the project site. Spill guidelines shall include the following:
   a. The transformer oil transportation route shall be mapped with all navigable or potentially navigable waters adjacent to or perpendicular to the route
   b. A list of contact information for the appropriate local, State, and federal authorities shall be located in the transportation vehicle(s) at all times
   c. Transformer oil spills during transportation shall be immediately reported to the appropriate local, State, and federal authorities

The spill response plan shall be implemented during construction, operation, and decommissioning. In addition, during the life of project operation, the project shall not use any hazardous materials not specified in the plan or in greater quantities than specified, unless approved in advance by BLM.

**MM PHS-4** **An Environmental Health and Safety Plan shall be prepared.** The Applicant shall develop an Environmental Health and Safety Plan for the construction and operation of the project to ensure it includes all activities and compliance with all local, state and federal regulatory requirements. Illness and Injury Prevention Programs will be developed for construction and operation. The Applicant shall prepare the plan for approval by the BLM. The Applicant shall be responsible for implementing the approved plan.

The plan shall include the following:

1. An organizational structure;
2. A description of site characteristics and a job hazard analysis;
3. A description of site controls that includes a site map; identification of site access restrictions, site security, site work zones, any required exclusion zones, any contaminant reduction zones, relevant support zones, and site communications;
4. Training requirements and documentation of training;
5. Medical surveillance;
6. Personal protective equipment;
7. Exposure monitoring;
8. Heat stress;

9. Spill containment;
10. Decontamination;
11. Emergency response;
12. Relevant standard operating procedures; and
13. Confined space (if relevant).

**MM PHS-5** **A project-specific Emergency Response and Inventory Plan shall be prepared.** The Applicant shall provide the County of Riverside with a project-specific Emergency Response and Inventory Plan before construction begins. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

The plan shall include the following:

1. An evacuation plan;
2. A list of emergency contacts;
3. A list of emergency resources;
4. Any special arrangements with emergency responders;
5. Relevant emergency procedures;
6. Post-incident reporting/recording responsibilities;
7. Identification of site components that may be vulnerable to earthquakes with procedures for inspection or isolation after a seismic event;
8. A list of on-site emergency equipment; and
9. An employee training plan that documents training areas and capabilities.

**MM PHS-6** **Ensure proper disposal or recycling of photovoltaic panels and other infrastructure.** In order to ensure that disposing of project structures does not pose a risk to human health or the environment, the Applicant shall develop a recycling and disposal plan for photovoltaic panels and other infrastructure, including support structures, treated wood poles, transformers, and inverters. This plan shall apply to components that are damaged or otherwise require replacement during project construction and operation and shall also apply to project decommissioning. The recycling plan shall specify means by which these project components will be disposed of in a manner that will not pose a risk to human health or the environment. Any sale or transfer of photovoltaic panels and support structures shall be required to transfer the recycling and disposal plan and obligations along with project infrastructure. The recycling plan shall apply to all project infrastructure. The project Owner shall implement the recycling plan at the end of the project's useful lifetime.

Special circumstances for cadmium-containing infrastructure: For any cadmium-containing photovoltaic panels that are not already subject to a pre-funded take back and recycling program, the Applicant must further:

1. Pre-identify a recycler of CdTe photovoltaic panels that is either in the United States, and therefore subject to regulations governing hazardous materials and health and safety regulations, or is ISO 14001 certified.
2. Provide a unique identification number for each CdTe module that is permanently affixed to the module and made of a material that will not fade or rust;
3. Register the location of each CdTe module with the County Department of Planning and Building; and
4. Label each CdTe module with the contact information for the County Department of Planning and Building.

**MM PHS-7** **Develop and implement fire services agreement with Riverside County Fire Department and BLM.** The Applicant shall enter into an agreement with Riverside County Fire Department/CAL FIRE and BLM. To address project impacts, the Applicant, based on consultation with CAL FIRE, shall ensure that either (a) a sufficient number of permanent project employees are trained as volunteer fire fighters or (b) the Applicant will provide fire protection training to its permanent employees. This will allow the project's on-site work force to combat and be first responders to any potential fires occurring on-site or within the vicinity of the project site prior to back up by CAL FIRE staff.

**MM FIRE-1** **A project-specific Fire Prevention Plan shall be developed and implemented.** [Full text in Section 4.8, Fire and Fuels Management]

**MM-PHS-8** **Develop and implement plan to address munitions and explosives of concern (MEC).** The plan shall include the following;

1. Historical Research. The project owner shall take steps to gather detailed information on the history of military activities within the proposed project footprint. This shall include further research regarding prior MEC removals that may have been issued in the past for certain areas by military or other investigating entities and archival research with the cooperation of the Department of Defense.
2. Department of Defense Consultation. The project owner shall consult with the Department of Defense on the likely occurrence of, and safe treatment of, MECs in the project area. As a result of the historical occurrence of military training activities throughout the Desert Training Center/California-Arizona Maneuver Area, potentially including the project area, this MEC consultation and archival research shall address the entire project footprint.
3. Further Assessment as Appropriate. After initial research and consultation with Department of Defense personnel, the Applicant shall undertake, as necessary, further appropriate above and below-ground assessments, under the direction of an expert consultant team (as determined by BLM), to delineate areas for further investigation and possible MEC removal. The Applicant, under direction from the BLM, shall determine which site-specific in-field investigative techniques and methodologies will be utilized to investigate and resolve potential MEC issues prior to project construction.

4. MEC Safety Training. All construction personnel shall receive appropriate MEC health and safety awareness training to ensure that they know what actions to take if unanticipated MEC or other suspicious articles are encountered during construction.

**MM PHS-9** **Use Licensed Herbicide Applicator.** During the construction and operational phases of the project, the contractor or personnel applying herbicides shall have all the appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use, including the BLM's 2007 *Vegetation Treatments Using Herbicide Programmatic Final Environmental Impact Statement*. Herbicides shall be mixed and applied in conformance with the product manufacturer's directions. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets (MSDSs) for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and waterbodies, herbicides shall not be applied directly to wildlife, products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed, and herbicides shall not be applied within 50 feet of any surface waterbody when water is present. Herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

Prior to any herbicide application, the herbicide applicator shall contact the Environmental Monitor to show where work will be done and to receive information/ training about potentially sensitive biological resources that may be within the area to be sprayed and methods to apply to minimize those impacts. A Worker's Training Manual shall be prepared and include a provision on herbicide application. Once facility operation commences, this Manual shall be given to any herbicide applicator to be reviewed prior to spraying.

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of proposed mitigation, the construction, operation and decommissioning of the proposed solar facility would not result in any unavoidable adverse effects to public health and safety.

### 4.13.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area.

***Construction***

Construction components of Alternative 5 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 5 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 5 would be the same as those under Alternative 4.

### *Operation and Maintenance*

Operation and maintenance activities and equipment required under Alternative 5 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 5 would be the same as those discussed under Alternative 4.

### *Decommissioning*

Decommissioning activities under Alternative 5 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 5 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

### *Mitigation Measures*

The measures identified for Alternative 4 would also be implemented under Alternative 5.

### *Residual Impacts and Unavoidable Adverse Effects*

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 5 would not result in any unavoidable adverse effects to public health and safety.

## 4.13.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

### *Construction*

Construction components of Alternative 6 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 6 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 6 would be the same as those under Alternative 4.

### *Operation and Maintenance*

Operation and maintenance activities and equipment required under Alternative 6 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 6 would be the same as those discussed under Alternative 4.

***Decommissioning***

Decommissioning activities under Alternative 6 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 6 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

***Mitigation Measures***

The measures identified for Alternative 4 would also be implemented under Alternative 6.

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 6 would not result in any unavoidable adverse effects to public health and safety.

### 4.13.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

***Construction***

Construction components of Alternative 7 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 7 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 7 would be the same as those under Alternative 4.

***Operation and Maintenance***

Operation and maintenance activities and equipment required under Alternative 7 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 7 would be the same as those discussed under Alternative 4.

***Decommissioning***

Decommissioning activities under Alternative 7 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 7 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

***Mitigation Measures***

The measures identified for Alternative 4 would also be implemented under Alternative 7.

***Residual Impacts and Unavoidable Adverse Effects***

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 7 would not result in any unavoidable adverse effects to public health and safety.

### 4.13.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, there would be no effects to public health or safety related to construction, operations and maintenance, or decommissioning.

***Mitigation Measures***

No mitigation measures for public health and safety are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No public health and safety effects would result from the implementation of Alternative A.

### 4.13.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for the DSSF project by sharing the approved transmission towers. However, because construction of the DSSF gen-tie line had not yet begun in September 2011, this analysis assumes that the proposed project would include all construction, operations, and decommissioning activities for Alternative B.

***Construction***

Stringing the proposed gen-tie line would occur concurrently with construction of the gen-tie line for DSSF. However, since this construction had not yet begun in September 2011, this analysis assumes that the Proposed Action would require all related construction activities.

The types of construction activities under Alternative B would be similar to those for Alternative 4; however, less construction would be required for the gen-tie than for the project and no solar modules would be involved. Therefore, there would be less potential for effects on public health and safety.

***Operation and Maintenance***

Operation and maintenance activities under Alternative B would be essentially the same as those for Alternative 4.

Effects of operation and maintenance under Alternative B would be similar to those of Alternative 4; however, less maintenance activity would be required for the gen-tie than for the project, and no solar modules would be involved. Therefore, there would be less potential for effects to public health and safety.

### Decommissioning

Decommissioning activities under Alternative B would be similar to those for Alternative 4; however, less decommissioning would be required for the gen-tie than for the solar facility and no solar modules would be involved. Therefore, there would be fewer potential effects to public health and safety.

### Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative B.

### Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

## 4.13.12 Alternative C – Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved DSSF gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of the DSSF towers would be constructed.

### Construction

Construction effects would be the same as those of Alternative B.

### Operation and Maintenance

Operations and maintenance effects would be the same as those of Alternative B.

### Decommissioning

Decommissioning effects would be the same as those of Alternative B.

### Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative C.

### Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

## 4.13.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternatives B and C, except it would require slightly less temporary and permanent ground disturbance.

### Construction

Effects on public health and safety would be slightly reduced under Alternative D due to the need for slightly less ground disturbance, noted above. However, with consideration to the overall project, this difference in potential effects would be negligible. Construction effects to would be the same as described for Alternative B.

***Operation and Maintenance***

Potential effects to public health and safety from operations and maintenance would be the same as those from Alternative B.

***Decommissioning***

Decommissioning of Alternative D may result in slightly decreased effects to public health and safety compared to Alternatives B and C because of slightly decreased land disturbance. However, as with construction, this difference would be negligible. Decommissioning effects to public health and safety would be essentially the same as those from Alternative B.

***Mitigation Measures***

Measures identified for Alternative 4 would also be implemented for Alternative D.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

### 4.13.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be the same as described for Alternative D.

***Construction***

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

***Operation and Maintenance***

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

***Decommissioning***

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

***Mitigation Measures***

Measures identified for Alternative 4 would also be implemented for Alternative E.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

### 4.13.15 Cumulative Effects

***Geographic Scope***

The geographic area considered for cumulative effects on Public Health and Safety is within the I-10 corridor from Indio to Blythe, California for emergency response. A number of alternative energy projects are proposed in the region, primarily east of the project site area (see Tables 4.1-1 and 4.1-2 in Section 4.1 for complete list of existing and foreseeable projects included in the cumulative analysis approach). The geographic area considered for cumulative effects for hazards includes the immediate solar facility boundaries and the access routes to the gen-tie line and alternatives and the primary access route to the solar facility site.

***Past, Present, and Reasonably Foreseeable Future Projects***

Existing and foreseeable projects within the I-10 corridor are listed in Tables 4.1-1 and 4.1-2 and could combine with the project and result in effects to emergency response of the proposed project and alternatives. Table 4.13-2 lists all existing and foreseeable projects that could combine with hazards to result in cumulative effects.

**Table 4.13-2. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Public Health and Safety | Within the I 10 corridor from Indio to Blythe, California for emergency response and within the proposed project and alternatives and access routes for hazards | Hazardous spills and emergencies or fires at multiple locations | All projects listed in Table 4.1-1 and 4.1-2 for emergency response.<br>The following projects for hazardous spills:<br>• Desert Sunlight Solar Farm<br>• Desert Center Solar Project<br>• Chuckwalla Valley Racetrack<br>• Silverado Power Solar Project<br>• SCE Red Bluff Substation (Alternatives B through E)<br>• I-10 (Alternatives B through E) |

***Cumulative Effects Analysis***

Hazardous material spills or safety issues related to emergency response during construction and operation of the proposed project or alternatives could potentially contribute to cumulative effects when combined with the impacts of other foreseeable projects in the area. In particular, if hazardous material spills, fires, or other emergencies occurred at multiple project sites simultaneously, emergency response resources could be overwhelmed and unable respond effectively. However, it is unlikely that two or more facilities would require emergency response at the same time, and with the implementation of mitigation measures required for the proposed project or Alternatives 5 through 7 and C through E, the project would not substantially contribute to cumulative effects related to emergency response. Implementation of emergency response plans and fire management plans would also be standard protocols for other facilities in the region and these plans would likely be similarly effective in ensuring no cumulative effects related to emergency response or fire.

Because the project would comply with all relevant regulatory requirements regarding use and disposal of hazardous materials, the incremental effects of the project related to exposing workers, the public, or the environment to hazardous materials would be minimal. Mitigation Measures PHS-1 through PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) would also reduce these potential effects. Other foreseeable renewable energy projects in the vicinity, such as Palen Solar Energy and the DSSF project (directly north of the DHSP) are subject to the same regulatory requirements related to the handling, storage, and disposal of hazardous materials and wastes.

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, and 3) or Alternative A (No Gen-Tie), these alternatives would not contribute to cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.13.16 CEQA Considerations

*__CEQA Significance Criteria__*

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to public health or safety under CEQA. Impacts to public health and safety would be significant if the project:

H-1 Increases exposure of humans or the environment to potentially hazardous levels of chemicals due to the disturbance of contaminated soils or to the discharge or disposal of hazardous materials into soils;

H-2 Increases significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

H-3 Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment;

H-4 Is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the Cortese List of underground leaking storage tanks) that would create a significant hazard to the public or environment;

H-5 Impairs implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

H-6 Mobilizes contaminants in the soil or groundwater, creating potential pathways of exposure to humans or wildlife that would result in exposure to contaminants at levels that would be expected to be harmful;

H-7 Exposes workers to contaminated or hazardous materials at levels in excess of those permitted by the Federal Occupational Safety and Health Administration (OSHA) in CFR 29, Part 1910, and the California Occupational Safety and Health Agency

(Cal/OSHA) in California Code of Regulations (CCR) Title 8, or expose members of the public to direct or indirect contact with hazardous materials from proposed project construction or operations;

H-8 Exposes people or structures to a significant risk of loss, injury, or death involving electrocution or cause excessive exposure to wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands;

H-9 Results in safety hazards to people that may be located in the vicinity of private air strips or airports located within 2 miles of the project; or

H-10 Exposes people to significant hazards or structures to loss as a result of intentionally destructive acts.

For all project alternatives, the following criterion was determined to be inapplicable or to result in no impact under alternatives. The determination regarding this significance criterion is discussed below and then this significance criterion is not considered further.

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

No component associated with any project alternative is located within one-quarter of a mile of the closest school, the Eagle Mountain Elementary School. There would be no impacts under this criterion from any component of the project.

### *CEQA Significance Determination*

Alternatives 1, 2, 3 and A would not involve construction of the project or gen-tie line. These alternatives would have no impacts on public health and safety.

### *Alternative 4*

With regard to Criterion H-1, the project site does not contain any known contamination that would be disturbed and increase exposure of workers, the public, or the environment to hazardous chemicals. Any previously unknown contaminated soils that may be encountered would be treated and disposed of in accordance with applicable regulations. Therefore, impacts related to Significance Criterion H-1 would be less than significant.

With regard to Criterion H-2, all hazardous materials that would be transported, used, or disposed of during construction, operation, and decommissioning of the project would be dealt with in accordance with all applicable regulatory requirements. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-2 would be less than significant.

With regard to Criterion H-3, all hazardous materials that would be transported, used, or disposed of during construction, operation, and decommissioning would be dealt with in accordance with all applicable regulatory requirements. Mitigation Measure PHS-3 specifically addresses the components of the required Spill Prevention Control and Countermeasure (SPCC) Plan. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-3 would be less than significant. Mitigation Measure PHS-8 specifically addresses potential hazards related to munitions and explosives of concern (MEC) that could be found in the project area.

With regard to Criterion H-4, based on the Phase I ESA conducted for the DSSF project, the DHSP site and the gen-tie line routes do not contain any hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the project would have no impact related to Significance Criterion H-4.

With regard to Criterion H-5, the project could potentially impact the implementation of emergency response plans; however, with the implementation of Mitigation Measures PHS-4 (Environmental Health and Safety Plan) and PHS-5 (Emergency Response and Inventory Plan), this impact would be less than significant.

For Criterion H-6, see Criteria H-1 and H-4. No known soil contaminants would be mobilized by ground disturbance associated with the proposed project. There would be no impact related to Significance Criterion H-6.

For Criterion H-7, see also Criterion H-2. All hazardous materials that would be transported, used, or disposed of during project construction, operation, and decommissioning would be dealt with in accordance with all applicable regulatory requirements. There is no known contamination that on the project site that would expose workers to hazardous materials. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-7 would be less than significant.

With regard to Criterion H-8, the project could increase the risk of wildfire because vehicles used for the project could cause combustion of dry vegetation. However, with the implementation of Mitigation Measure MM-FIRE-1, MM-PHS-5, and MM-VEG-9 (Prepare Integrated Weed Management Plan), impacts related to Significance Criterion H-8 would be less than significant.

With regard to Criterion H-9, the project would not create safety hazards for the one small private air strip or the special use airport in the vicinity. The project would have no aboveground structures that would increase safety hazards to the two private air strips. No impacts would occur related to Significance Criterion H-9.

With regard to Criterion H-10, although the project would introduce facilities that could be subject to intentionally destructive acts, with the implementation of MM-PHS-5 impacts related to Significance Criterion H-10 would be less than significant.

**Cumulative Impacts**. The project would pose potential risks to public health and safety related to use and disposal of hazardous materials. MM-PHS-1 through MM-PHS-6 would minimize these impacts, and the impacts would be site-specific and would not combine with similar effects from other projects to produce cumulative impacts. Therefore, the project would not represent a considerable contribution to any cumulative impacts to public health and safety related to hazardous materials.

The project could potentially contribute to overburdening emergency response resources; however, implementation of MM-PHS-4 (Environmental Health and Safety Plan), MM-PHS-5 (Emergency Response and Inventory Plan), and MM-FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM-PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to respond to emergencies. With these measures the project would not represent a considerable contribution to cumulative impacts related to emergency response.

### *Alternative 5*

Significance Criteria H-1 through H-10 would be the same for Alternative 5 as for Alternative 4 as discussed in Section 4.13.7. The same mitigation measures would apply as appropriate.

### *Alternative 6*

Significance Criteria H-1 through H-10 would be the same for Alternative 6 as for Alternative 4 as discussed in Section 4.13.8. The same mitigation measures would apply as appropriate.

### *Alternative 7*

Significance Criteria H-1 through H-10 would be the same for Alternative 7 as for Alternative 4 as discussed in Section 4.13.8. The same mitigation measures would apply as appropriate.

### *Alternative B*

Significance Criteria H-1 through H-10 would be the essentially same for Alternative B as for Alternative 4 as discussed in Section 4.13.11. The same mitigation measures would apply as appropriate.

### *Alternative C*

Significance Criteria H-1 through H-10 would be essentially the same for Alternative C as for Alternative 4 as discussed in Section 4.13.12. The same mitigation measures would apply as appropriate.

### *Alternative D*

Significance Criteria H-1 through H-10 would be essentially the same for Alternative D as for Alternative 4 as discussed in Section 4.13.13. The same mitigation measures would apply as appropriate.

### *Alternative E*

Significance Criteria H-1 through H-10 would be essentially the same for Alternative E as for Alternative 4 as discussed in Section 4.13.14. The same mitigation measures would apply as appropriate.

# Section 4.14

## Recreation

## 4.14 RECREATION

### 4.14.1 Methodology for Analysis

This section addresses whether the construction, operation, and decommissioning of the proposed project and alternatives would directly or indirectly impact recreational opportunities including off-highway vehicle travel, hiking, backpacking and long-term camping in established federal, state, or local recreation areas and/or wilderness areas.

### 4.14.2 Applicant Measures

No applicant measures, project design features, best management practices, or other measures related to recreation are proposed.

### 4.14.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.14.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.14.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.14.6 Alternative 4 – Proposed Solar Project

***Construction***

***Direct Effects***

Construction of Alternative 4 would develop 1,208 acres of undeveloped multiple use BLM land as a solar field. As described in Chapter 3.14, recreation use in the project area is minimal. Most recreation use is related to driving for pleasure, sightseeing, rock hounding, hiking, hunting/target shooting, or photography. Most visitors are local residents of Desert Center or Blythe. The project area included in Alternative 4 would be exclusively used for solar energy generation, and all recreation would be prohibited during construction. As described in section 3.14, there are no OHV routes or open access areas that intersect Alternative 4, so construction would not directly affect this recreational use.

### *Indirect Effects*

Eliminating recreational use of the Alternative 4 site could result in some minimal increase of recreational use outside the project boundary. In addition, the construction of the proposed solar facility would result in a temporary increase in population due to the influx of construction workers. The facility would require a peak construction workforce of up to 315 workers. Construction workers are expected to travel to the site from various locations, chiefly from within Riverside County. During construction, workers might temporarily relocate to the project vicinity and use local recreation areas such as the recreational opportunities in Lake Tamarisk. During the two-year construction period, the average number of construction workers is anticipated to be 100, and the maximum number is anticipated to be 250. The Desert Lily ACEC, Joshua Tree Wilderness, and Joshua Tree National Park are in the immediate vicinity of the project site. Use of these recreation areas by temporary construction workers is not expected to affect recreational use of the Desert Lily ACEC, Joshua Tree Wilderness, or Joshua Tree National Park by the general public, as construction worker use is expected to be minimal.

Because construction of the project would alter the existing character of the project study area, it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area, located 1.8 miles from the solar facility boundary at its nearest point. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area and the project site. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. In addition, the effects of the proposed project on Joshua Tree National Park and the Joshua Tree Wilderness Area for all resources are addressed in Section 4.17 (Special Designations). While the construction of the project is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the two-year duration of construction.

### *Operation and Maintenance*

The proposed operation and maintenance of Alternative 4 would have the same effects as those during construction, because the area would be used exclusively for solar generation and remain closed to recreation for the life of the project. In addition, although the visual effects of operation and the long term presence of the project would be substantially reduced compared with construction, the effects would be ongoing for 30 or 50 years, permanently diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area.

### *Decommissioning*

During the decommissioning process, the same area would be closed to recreation as during construction, yielding the same effects. After revegetation is successful, decommissioning of Alternative 4 would ultimately result in the reopening of the area to other uses, including recreation, and it would improve the wilderness experience for visitors to Joshua Tree Wilderness Area that would be diminished during project construction and operation.

***Mitigation Measures***

The following mitigation measures would ensure that project-related construction and operation activities would be reduced:

**MM VR-1** **Reduce Construction Related Impacts.** [full text of measure in Section 4.19]

**MM VR-2** **Revegetation.** [full text of measure in Section 4.19]

**MM VR-3** **Project Design to Reduce Visual Contrast.** [full text of measure in Section 4.19]

**MM VR-4** **Surface Treatment of Project Structures/Buildings.** [full text of measure in Section 4.19]

**MM VR-5** **Screening Vegetation Buffer.** [full text of measure in Section 4.19]

**MM VR-6** **Night Light Control.** [full text of measure in Section 4.19]

***Residual Impacts and Unavoidable Adverse Effects***

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience. Implementation of Alternative 4 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

### 4.14.7 Alternative 5 – Solar Project Excluding WHMA

***Construction***

Construction of Alternative 5 would create the same effects on recreation as Alternative 4. The Wildlife Habitat Management Area (WHMA) removed from the solar facility site under Alternative 5 does not provide additional recreational resources, including OHV use. Therefore, effects from construction of Alternative 5 would not differ from those of Alternative 4.

***Operation and Maintenance***

The effects resulting from operating and maintaining Alternative 5 would be the same as those discussed under Alternative 4.

***Decommissioning***

The effects resulting from decommissioning Alternative 5 would be the same as those discussed under Alternative 4.

*Mitigation Measures*

The measures identified for Alternative 4 would also be implemented under Alternative 5.

*Residual Impacts and Unavoidable Adverse Effects*

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience. Implementation of Alternative 5 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

### 4.14.8 Alternative 6 – Reduced Footprint Solar Project

*Construction*

Construction of Alternative 6 would create the same effects on recreation as Alternative 4. The southwest portion of the solar facility, removed from the project under Alternative 6, does not provide significant additional recreational resources. Therefore, effects from construction of Alternative 6 would not differ from Alternative 4.

*Operation and Maintenance*

The effects resulting from operating and maintaining Alternative 6 would be the same as those discussed under Alternative 4.

*Decommissioning*

The effects resulting from decommissioning Alternative 6 would be the same as those discussed under Alternative 4.

*Mitigation Measures*

The measures identified for Alternative 4 would also be implemented under Alternative 6.

*Residual Impacts and Unavoidable Adverse Effects*

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience. Implementation of Alternative 4 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

### 4.14.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

*Construction*

Construction of Alternative 7 would create the same effects on recreation as Alternative 4. The southwest portion of the solar facility removed from the project under Alternative 7 does not provide significant additional recreational resources. The high-profile of the panel height does not substantially change the altered viewshed and adverse effect on the wilderness experience. Therefore, effects from construction of Alternative 7 would not differ from Alternative 4.

### Operation and Maintenance

The effects resulting from operating and maintaining Alternative 7 would be the same as those discussed under Alternative 4.

### Decommissioning

The effects resulting from decommissioning Alternative 7 would be the same as those discussed under Alternative 4.

### Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 7.

### Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience. Implementation of Alternative 4 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

## 4.14.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no recreational resources effects related to construction, operations and maintenance, or decommissioning would occur.

### Mitigation Measures

No mitigation measures for energy and mineral resources are required for Alternative A.

### Residual Impacts and Unavoidable Adverse Effects

No energy or mineral resources effects would result from the implementation of Alternative A.

## 4.14.11 Alternative B – Proposed Gen-Tie (Shared Towers)

### Construction

#### *Direct Effects*

Construction of Alternative B would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative B and related construction efforts would not intersect or inhibit any OHV routes, and would not affect existing OHV opportunities. Use of these recreation areas by temporary construction workers is not expected to affect recreational use of the Desert Lily Preserve ACEC, Joshua Tree Wilderness, or Joshua Tree National Park by the general public, as construction worker use is expected to be minimal.

*Indirect Effects*

Because construction of Alternative B would alter the existing character of the area, it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area and Alligator Rock ACEC. Construction activities would be visible from BLM recreational access roads, Desert Lily Preserve ACEC, Joshua Tree Wilderness in Joshua Tree National Park, and the Chuckwalla Mountains Wilderness. However, the Joshua Tree Wilderness Area is located 4.5 miles and the Alligator Rock ACEC is located 0.5 miles from Alternative B at the nearest point. Noise impacts would not occur and visual impacts would be minimal due to the distance between the Joshua Tree Wilderness Area and Alligator Rock ACEC and the gen-tie line. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. In addition, the effects of the proposed project on Joshua Tree National Park, the Joshua Tree Wilderness Area, and Alligator Rock ACEC for all resources are addressed in Section 4.17 (Special Designations). The construction of Alternative B is not expected to reduce visitation to the Wilderness Area and it is expected to minimally diminish the wilderness experience throughout the duration of construction.

***Operation and Maintenance***

*Direct Effects*

Operation and Maintenance of Alternative B would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative B would not intersect or inhibit any OHV routes.

*Indirect Effects*

The proposed operation and maintenance of Alternative B would have the same effects as those during construction, because the area would be used exclusively for the gen-tie line and remain closed to recreation for the life of the project. The visual effects of operation and the long term presence of the gen-tie line would be substantially reduced compared with construction and would minimally diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area and Alligator Rock ACEC.

***Decommissioning***

*Direct Effects*

Decommissioning Alternative B would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

*Indirect Effects*

During the decommissioning process, the same area would be closed to recreation as during construction, yielding the same effects. Decommissioning of Alternative B would ultimately result in the reopening of the area to other uses, including recreation, and it would enhance the wilderness experience for visitors to Joshua Tree Wilderness Area and Alligator Rock ACEC.

### *Mitigation Measures*

Mitigation Measures VR-1 through VR-6 would also apply to Alternative B with respect to the transmission line component.

### *Residual Impacts and Unavoidable Adverse Effects*

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

## 4.14.12 Alternative C –Separate Transmission Towers within Same ROW

### *Construction*

Because Alternative C would be within the same ROW and follow the same path as Alternative B, construction effects of Alternative C would be the same as those described for Alternative B.

### *Operation and Maintenance*

Operation and maintenance effects of Alternative C would be the same as those described for Alternative B.

### *Decommissioning*

Decommissioning effects of Alternative C would be the same as those described for Alternative B.

### *Mitigation Measures*

Mitigation Measures VR-1 through VR-6 would also apply to Alternative C with respect to the transmission line component.

### *Residual Impacts and Unavoidable Adverse Effects*

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

## 4.14.13 Alternative D – Cross-Valley Alignment

### *Construction*

#### *Direct Effects*

Construction of Alternative D would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative D and related construction efforts would not intersect or inhibit any OHV routes.

*Indirect Effects*

Construction of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity. Alternative D is located 4 miles from the nearest Joshua Tree Wilderness Area and would be located adjacent to an existing transmission line. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area and Alternative D and visual impacts would be minimal. The construction of Alternative D is not expected to reduce visitation to the Wilderness Area and it is expected to minimally diminish the wilderness experience throughout the duration of construction.

***Operation and Maintenance***

*Direct Effects*

Operation and Maintenance of Alternative D would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative D would not intersect or inhibit any OHV routes.

*Indirect Effects*

Operation and Maintenance of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity.

***Decommissioning***

*Direct Effects*

Decommissioning Alternative D would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

*Indirect Effects*

Decommissioning of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity.

***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative D with respect to the transmission line component.

***Residual Impacts and Unavoidable Adverse Effects***

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

### 4.14.14 Alternative E – New Cross-Valley Alignment

#### *Construction*

#### *Direct Effects*

Construction of Alternative E would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative E and related construction efforts would not intersect or inhibit any OHV routes.

#### *Indirect Effects*

Construction of Alternative E would not diminish access or availability of recreational opportunities in the project vicinity. Alternative E is located 2.25 miles from the nearest Joshua Tree Wilderness Area and 0.5 miles from the southern-most point of the Desert Lily ACEC. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area, the Desert Lily ACEC, and Alternative E. Visual impacts of Alternative E when viewed from the Joshua Tree Wilderness Area would be minimal. Visual impacts of Alternative E when viewed from the southern-most point of the Desert Lily ACEC would result in adverse and unmitigable impacts because the alternative would result in a moderate to high level of visual change and would not meet applicable Interim VRM Class III objectives.

#### *Operation and Maintenance*

#### *Direct Effects*

Operation and Maintenance of Alternative E would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative E would not intersect or inhibit any OHV routes.

#### *Indirect Effects*

Operation and Maintenance of Alternative E would diminish the recreational experience of users visiting the Desert Lily ACEC due to the adverse and unmitigable visual impacts.

#### *Decommissioning*

#### *Direct Effects*

Decommissioning Alternative E would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

#### *Indirect Effects*

Decommissioning of Alternative E would not diminish access or availability of recreational opportunities in the project vicinity.

***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative E with respect to the transmission line component.

***Residual Impacts and Unavoidable Adverse Effects***

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed and construction impacts. Nonetheless, residual impacts to recreational visitors to the Desert Lily ACEC would be the substantial diminishment of the visual quality of the experience. Implementation of Alternative E would result in an unavoidable adverse effect to the recreational experience in proximal locations to the Desert Lily ACEC during construction, and operation.

### 4.14.15 Cumulative Effects

***Geographic Scope***

The geographic extent for the consideration of cumulative effects to recreation is the local and regional recreational opportunities along the I-10 corridor/eastern Riverside County described in Section 4.1.4, Cumulative Scenario Approach. Tables 4.1-1 and 4.1-2 list existing and reasonably foreseeable projects in this area that would impact the regional recreational opportunities. Existing and reasonably foreseeable projects that would impact the local recreational opportunities include renewable projects such as the DSSF, the Silverado Power Solar Project, Desert Center II Solar Project, Palen Solar Power Project, Sol Orchard, and the Eagle Mountain Wind Project Met Towers and industrial projects such as the Eagle Mountain Pumping Plant, the Eagle Mountain Pumped Storage Project, the Eagle Mountain Landfill Project, Red Bluff Substation, DPV1, DPV2, and the Blythe Energy Project Transmission Line.

**Table 4.14-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Recreation | I-10 Corridor between Indio and Blythe | Impacts to recreational users, impacts to the existing character of the project site | All projects listed in Table 4.1-1 and 4.1-2 for regional impacts.<br>The following projects for local recreational impacts:<br>• Desert Sunlight Solar Farm<br>• Silverado Power Solar Project<br>• Desert Center II Solar Project<br>• Palen Solar Power Project<br>• Sol Orchard<br>• Eagle Mountain Wind Project Met Towers<br>• Eagle Mountain Pumping Plant<br>• Eagle Mountain Pumped Storage Project<br>• Eagle Mountain Landfill Project<br>• Red Bluff Substation<br>• DPV1<br>• DPV2<br>• Blythe Energy Project Transmission Line. |

### *Cumulative Effects Analysis*

Existing conditions within the cumulative effects area reflect a combination of natural conditions and related recreational opportunities, and the effects of past actions. The existing cumulative conditions near the project study area include the existing projects listed in Table 4.1-1 (Existing Projects Along the I-10 Corridor [Eastern Riverside County]) in Section 4.1.4, Cumulative Scenario Approach. These include existing recreational opportunities offered by BLM such as campgrounds and the Midland Long-Term Visitor Area.

The majority of effects to on-site and off-site recreational users resulting from construction and operation of the proposed project and alternatives would be minimal. As noted above, the proposed project and alternatives would be near Joshua Tree Wilderness. While the construction of the project is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the two-year construction period and the 30- to 50-year operations period.

The Chuckwalla Valley Raceway, a private-use raceway, provides some recreational opportunities in the project vicinity. Operation of the raceway would not be affected by the proposed project and alternatives. Existing projects have not had a significant adverse cumulative effect on recreation. After decommissioning of the project, the project site would be available again for active or passive recreational use. Accordingly, the potential for incremental, project-specific, effects to result in a cumulative effect on recreation with other past, present, or reasonably foreseeable future actions is low.

Foreseeable projects in the Project area are listed in Table 4.1-2 (Foreseeable Projects along the I-10 Corridor [Eastern Riverside County]). As shown in Table 4.1-2, about 30 projects have been proposed in the project study area. Nearly half of these have been approved or are under construction. Twenty of the projects are either renewable energy projects or transmission projects associated with renewable energy. Seven of the energy projects in Table 4.1-2 are in the vicinity of the proposed project: Palen Solar Power Project, Desert Sunlight Solar Project (currently under construction), Desert Center 50, Sol Orchard, Silverado Power I, II, and III, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would add large and small-scale industrial, utility-related and other uses in the region, resulting loss of access to lands that are currently used for recreation. The DSSP is adjacent to the DHSP solar facility site, immediately to the north; its construction has resulted in the closure of small sections of OHV trails.

The proposed project and alternatives would alter the existing character of the project study area, and it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area. Three of the energy projects in Table 4.1-2 are as near or nearer to the Joshua Tree Wilderness Area, Desert Sunlight Solar Project, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would result in noise and visual impacts on the Joshua Tree Wilderness Area. While the construction of the projects is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the duration of construction, operation, and decommissioning of the cumulative projects.

Within the larger California Desert District area, 567,882 acres potentially available for recreational use could be lost to solar development and an additional 433,721 acres could be lost to wind development (BLM 2011). However, most of these projects in the California Desert District receive limited recreational use (BLM 2011). Within the I-10 corridor area used in this analysis (see Table 4.1-2), foreseeable projects could restrict or eliminate recreational use of over 52,000 acres. The recreation effects of the DHSP in combination with past, present, and proposed and reasonably foreseeable projects in eastern Riverside County would be substantial. These cumulative effects could substantially impact the recreation opportunities and experiences of users, communities, and regional populations.

The recreational effects for Alternatives 5, through 7 and C through E would be essentially the same as described for the proposed project and would represent substantial adverse cumulative effects. The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative effects to recreation, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.14.16 CEQA Considerations

#### *CEQA Significance Criteria*

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. Under CEQA, the proposed project and alternatives would have significant impacts on recreation if they would:

REC-1 Increase the use of neighborhood and regional recreation facilities such that the physical deterioration of the facilities would be substantial or accelerated; or

REC-2 Include recreation facilities or require the construction or expansion of recreation facilities that might have an adverse physical effect on the environment.

### *CEQA Significance Determination*

Alternatives 1, 2, 3, and A would not have any impacts related to recreation. Under these alternatives the DHSP would not be approved and would not be constructed. Lands would remain in their existing use.

As described above, construction, operation, and decommissioning of the proposed project and Alternatives 5 through 7 and B through E would not substantially increase the use of recreation facilities. Any current recreational use of the Project site is extremely minimal; therefore, very little recreational use would be displaced by the DHSP. During construction, workers might relocate to the project vicinity and use local recreation facilities. However, minimal recreational use by a small number of temporary construction workers over the two-year construction period would not lead to substantial or accelerated physical deterioration of recreational facilities (Significance Criterion REC-1). A less-than-significant impact would occur. The proposed project and alternatives would not construct any recreation facilities that might adversely affect the environment (Significance Criterion REC-2). No impact would occur.

**Cumulative Impacts**. As described in Section 4.14.15, the effects of existing and proposed projects in the vicinity of the DHSP could have cumulatively considerable impacts on the Joshua Tree Wilderness Area and on recreational use of land in the I-10 corridor. The contribution of the DHSP to cumulative impacts would be significant because it would change the existing character of the project study area and result in a diminished wilderness experience in proximal locations within the Coxcomb Mountains.

Alternative B would not contribute to cumulative effects to recreation, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

# Section 4.15

## Social and Economic

## 4.15 SOCIAL AND ECONOMIC

### 4.15.1 Methodology for Analysis

In Sections 4.15.3 through 4.15.14, the direct and indirect effects relevant to social and economic concerns for each alternative are assessed. The baseline conditions for this analysis are presented in Section 3.15. The analysis provided in Section 4.15.15 describes the potential cumulative social and economic effects as a result of the proposed project and alternatives in combination with other plans, policies, and projects that would occur in the area, as described in Section 4.1.

### 4.15.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project and shall be implemented to reduce adverse impacts associated with the project.

**AM S-1** **Notification**. The public shall be notified of project activities and scheduling to inform the public of projected effects on the surrounding area. This notification will provide the public with the opportunity to plan their personal and business activities appropriately.

**AM S-2** **Minimize Visual Impacts of Gen-Tie**. Project Applicant will align gen-tie lines along existing linear features (such as Kaiser Road) to minimize the social effects of potential visual effects.

### 4.15.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area Plan 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.15.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. No effects from the DHSP would occur.

### 4.15.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.15.6 Alternative 4 – Proposed Solar Project

#### *Construction*

*Direct Effects*

**Changes to Local Employment or Labor Force.** Construction employment for Alternative 4 would include skilled or semi-skilled positions including laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. As indicated in Table 3.15-4, Riverside County is home to a large construction workforce in proportion to the project labor force requirements. Workers from Riverside County would be recruited as much as practicable, but workers from nearby counties might also contribute to the project.

The maximum required construction workforce of 250 personnel required for the proposed solar facility would comprise 0.4 percent of the total combined construction workforce of Riverside County (62,194 persons) (BEA 2011). Although the immediate surroundings of Alternative 4 have a small population, local construction workforces are generally available in the region because of larger surrounding population centers. Job fairs would be held in neighboring communities, including Palm Springs, Desert Center, and Blythe. A majority of site workers are expected to travel from these communities, with a minimum number of employees traveling on a weekly or bi-weekly basis from enXco's headquarters in San Diego. Local highways provide access to the site from cities throughout the region. It is 72 miles (less than a 1.5-hour drive) between Palm Springs and Desert Center, and 49 miles (less than a 1-hour drive) from both Indio and Blythe to Desert Center. Therefore, few, if any, workers are expected to relocate to the area permanently for construction. The majority of these temporarily relocated workers likely would commute on a daily basis between home and the project study area. It is unlikely that they would relocate their families for the duration of construction. Based on the data provided in Section 3.15, in-migration of the construction workforce could be accommodated within the available hotel rooms and housing vacancies in the nearby cities of Blythe and Indio, which have approximately 35 lodging facilities, offering an average of 55 rooms per facility. Because construction workers would be expected to be from the neighboring communities or to be accommodated in the available hotel and housing vacancies, minimal increase in utilities would be expected. Please see Section 4.18, Transportation and Public Access, for a discussion regarding construction traffic.

**Changes in Revenue.** Employment of construction personnel would be beneficial to local businesses and the regional economy through increased expenditure of wages for goods and services. Construction personnel would be drawn whenever possible from local populations in Riverside County, creating new temporary employment in this county. A limited number of construction personnel would require temporary housing, likely in local hotels or rentals, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy.

**Quality of Life**. The influx of the construction workforce would alter the isolated, quiet, and sparsely populated character of the communities surrounding the solar facility site during the construction period, which would be a temporary effect to the quality of life to residents of Desert Center, Lake Tamarisk Park, and Eagle Mountain. Scoping comments noted that the influx of people would potentially result in law enforcement problems and an increase in the use of existing infrastructure. As discussed above, the majority of construction workers for the project would be expected to commute daily to the site from neighboring communities. Because most workers would travel to the site from their homes, local residents may have little daily interaction with the workers, and the workers are unlikely to result in law enforcement problems or result in an increase in the use of existing infrastructure. It is possible that some construction workers could choose to commute from their homes on a weekly basis and stay within the local area at local hotels/motels, rent homes, or look for other types of accommodations. In this case, after the workday is over, these individuals would be more likely to interact with existing residents at local businesses or community facilities; however, they would still be expected to abide by Riverside County laws and would not be expected to result in an increase in law enforcement problems. Given the limited number of construction workers expected to stay in the local area during the work week, the presence of these individuals would not be expected to result in substantial or long-term adverse effects to the local area's social composition and character.

### *Indirect Effects*

**Changes to Local Employment or Labor Force.** The proposed solar facility would not be expected to result in changes to local employment or labor force needs. A fire prevention plan would be in place during construction and would ensure adequate access to the project site in case of emergencies. It would protect against the possibility of fires generated by construction and operation of the DHSP, which would minimize the need for additional fire protection to the site. On-site security, including fencing, lighting, motion detectors, and cameras in key locations would minimize increased demand on law enforcement. During operations security lights would use motion sensor technology that would be triggered by movement at a human's height during maintenance or emergency activities. Sensors on the security fencing would alert security personnel of possible intruders. enXco would also require all new employees to complete health and safety training and follow standard construction safety measures during construction of Alternative 4, which would minimize the incidence of increased demand for hospital or emergency services. Given that the construction workforce for Alternative 4 would most likely already be employed in the regional construction industry in Riverside County and would be subject to similar safety risks and protection measures as a function of this employment, no increase in the demand on hospital or emergency services within the county are anticipated.

**Changes in Revenue.** No business uses occur in the immediate vicinity of Alternative 4, and the project would not require the removal or relocation of any businesses. Effects on local businesses would potentially result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions and increased traffic and associated air and noise emissions, land use, air quality, and noise effects, or health and safety concerns (such as electromagnetic frequencies [EMF]). These issues are analyzed in this document in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). As short-term construction-related effects, these effects would not be substantial or have been mitigated such that they would not be substantial, any associated loss of local business revenue impacts would be minimal. In addition, these short-term effects would not displace existing businesses and would result in minimal revenue impacts. Therefore, no additional mitigation measures are required outside of those presented in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public

Access), and 4.13 (Public Health and Safety) to mitigate potential effects that would result in a substantial change to local business revenues.

### *Operation and Maintenance*

#### *Direct Effects*

**Changes to Local Employment or Labor Force.** Operation and maintenance of Alternative 4 would require a workforce of up to 8 full-time staff year-round. This workforce would constitute < 0.01 percent of the total combined utilities workforce of Riverside County (275,000 persons) (CAEDD 2011). With less than two-hours of driving between Desert Center and Palm Springs, Indio, and Blythe, it is anticipated that few workers would relocate to the area permanently. Please see Section 4.18, Transportation and Public Access, for a discussion of operational traffic.

**Changes in Revenue.** Employment of operation and maintenance personnel would be beneficial to local businesses and the regional economy through increased expenditure of wages for goods and services. Personnel would be drawn from local populations in Riverside County, creating new employment in this County. A limited number of personnel would require housing and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy in terms of increased revenues.

#### *Indirect Effects*

**Changes in Property Value.** There is concern that solar facilities might affect property values in nearby communities. During the public scoping process for the proposed DHSP, the public expressed interest and concern regarding the potential effects of the project on property values. Other agencies, such as the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) have noted a high level of public concern associated with the siting of power plant projects, transmission lines, and other locally undesirable land uses (LULU) and potential effects on property values. Property values might decline in some locations as a result of the deterioration in aesthetic quality, increases in noise, real or perceived health effects, congestion, or social disruption. In other locations, property values might increase because of access to employment opportunities associated with solar development.

Numerous studies of LULUs, such as wind and nuclear energy generation and transmission line projects, conclude that the potential for environmental concerns associated with large-scale energy projects to have an effect on property value is usually smaller than anticipated and essentially impossible to quantify due to the individuality of properties and their respective neighborhoods, as well as differences in the personal preferences of individual buyers and the weight of other factors that contribute to a person's decision to purchase a property (Hoen et al. 2009, Metz et al. 1997, Office of Energy Efficiency and Renewable Energy and Bureau of Land Management 2010, Sterzinger et al. 2003). Studies indicate that other property-specific factors such as neighborhood features, square footage, size of lot, and irrigation potential are substantially more likely than the presence of energy infrastructure to be major determinants of the sales price of property (McCann 1999). Across the board, studies have generally concluded that over time, potential adverse effects to property value tend to diminish to a point of being negligible within five years; the studies determine that this decreasing effect is most likely due to increased screening of facilities over time, as vegetation increases in size, as well as diminished public sensitivity to the facility proximity, particularly resulting from the absence of adverse publicity.

As demonstrated by the studies discussed above, factors that have the potential to affect property value are numerous and varied; as a result, it is not possible to identify exactly how the project would potentially affect private property values. However, because the conclusions of the Kinnard-Dickey (1995) paper and the Hoen, et al. (2009) paper are applicable to this analysis, it is possible to say that property-specific factors such as neighborhood features, square footage, size of lot, and water availability are more likely to be major determinants in property values than the presence of a solar generating facility such as the DHSP. It is not unreasonable to assume that some aspect of project construction and/or operation and maintenance could potentially affect private property values. However, as discussed above, the effects of industrial facilities on property value are generally smaller in comparison to other relevant factors and generally diminish within five years to be negligible.

#### ***Decommissioning***

Socioeconomic effects that would result from decommissioning Alternative 4 are similar to those described for construction. Decommissioning Alternative 4 would likely require a similar number of workers during a similar timeframe to properly shut down and dismantle the solar field. Decommissioning and reclamation would be subject to a site-specific review when the facility reaches the end of its useful life.

#### ***Mitigation Measures***

No mitigation measures are identified or required to reduce the effects below the level of significance.

#### ***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 4 would be avoided or substantially reduced.

### 4.15.7 Alternative 5 – Solar Project Excluding WHMA

#### ***Construction***

Though Alternative 5 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

#### ***Operation and Maintenance***

The social and economic effects of operating and maintaining Alternative 5 would be the same as those identified under Alternative 4.

#### ***Decommissioning***

The social and economic effects of decommissioning Alternative 5 would be the same as those identified under Alternative 4.

#### ***Mitigation Measures***

No mitigation measures are identified or required to reduce the effects below the level of significance.

***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 5 would be avoided or substantially reduced.

### 4.15.8 Alternative 6 – Reduced Footprint Solar Project

***Construction***

Though Alternative 6 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

***Operation and Maintenance***

The social and economic effects of operating and maintaining Alternative 6 would be the same as those identified under Alternative 4.

***Decommissioning***

The social and economic effects of decommissioning Alternative 6 would be the same as those identified under Alternative 4.

***Mitigation Measures***

No mitigation measures are identified or required to reduce the effects below the level of significance.

***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 6 would be avoided or substantially reduced.

### 4.15.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

***Construction***

Though Alternative 7 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

***Operation and Maintenance***

The social and economic effects of operating and maintaining Alternative 7 would be the same as those identified under Alternative 4.

***Decommissioning***

The social and economic effects of decommissioning Alternative 7 would be the same as those identified under Alternative 4.

***Mitigation Measures***

No mitigation measures are identified or required to reduce the effects below the level of significance.

***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 7 would be avoided or substantially reduced.

### 4.15.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the Proposed Action. Therefore, no social or economic effects related to construction, operations and maintenance, or decommissioning of the gen-tie line would occur.

***Mitigation Measures***

No mitigation measures for social and economic effects are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No social or economic effects would result from the implementation of Alternative A.

### 4.15.11 Alternative B – Proposed Gen-Tie (Shared Towers)

***Construction***

**Changes to Local Employment or Labor Force.** Construction of gen-tie line Alternative B would employ fewer workers from the regional economy than the proposed solar generating facility and alternatives. The workforce for Alternative B is expected to average 30 employees over the 12-month gen-tie line construction period, with a peak of 65 employees. As with the solar field alternatives, this additional labor force would constitute a very small fraction of the total combined construction workforce of Riverside County, and few, if any, workers are expected to relocate to the area permanently for construction.

**Changes in Revenue.** As with the solar field alternatives, employment of construction personnel would be beneficial to local businesses and the regional economy. Changes in revenue from Alternative B would be similar to those described in Alternative 4, but proportionally smaller given the smaller workforce required for Alternative B.

**Quality of Life**. Effects of Alternative B on quality of life would be similar to those described under Alternative 4, but proportionally smaller given the smaller workforce required for Alternative B.

*Indirect Effects*

**Changes to Local Employment or Labor Force.** Alternative B would not be expected to result in changes to local employment or labor force needs. The fire prevention plan that would be in place during construction of solar field alternatives would also apply to construction of Alternative B, and would minimize the demand that this construction would place on the California Department of Forestry and Fire Protection. All new employees working on Alternative B would be required to complete health and safety training and follow standard construction safety measures during construction, which would minimize the incidence of increased demand for hospital or emergency services. Given that the small construction workforce for Alternative B would most likely already be employed in the regional construction industry in Riverside County and would be subject to similar safety risks and protection measures as a function of this employment, no increase in the demand on hospital or emergency services within the County are anticipated.

**Changes in Revenue.** No business uses occur in the immediate vicinity of Alternative B, and the alternative would not require the removal or relocation of any businesses. Effects on local businesses would potentially result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions, land use, air quality, and noise effects, or health and safety concerns (such as electromagnetic frequencies [EMF]). These issues are analyzed in this document in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). Effects from these issues would be the same as those described under Alternative 4, but proportionally smaller. As stated in Alternative 4, no additional mitigation measures are required outside of those presented in 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety) to mitigate potential effects that would result in a substantial change to local business revenues.

#### *Operation and Maintenance*

There would be no new operations workforce associated with Alternative B beyond those associated with the solar field alternatives, and there would be no additional effects on population, housing, employment, income, or environmental justice populations associated with the operation of Alternative B. Removal of larger vegetation that could inhibit access to Alternative B would also reduce the likelihood of fire, which would minimize the demand potentially placed on the California Department of Forestry and Fire Protection.

#### *Decommissioning*

Effects resulting from decommissioning Alternative B are similar to those described under the construction phase.

#### *Mitigation Measures*

No mitigation measures are identified or required to reduce the effects below the level of significance.

#### *Residual Impacts and Unavoidable Adverse Effects*

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative B would be avoided or substantially reduced.

### 4.15.12 Alternative C –Separate Transmission Towers within Same ROW

*Construction*

The infrastructure required for Alternative C is the same as that for Alternative B; the two alternatives would share the same ROW and follow the same path. Therefore, social and economic effects of construction of Alternative C would be identical to those described for Alternative B.

*Operation and Maintenance*

Social and economic effects of operating and maintaining Alternative C would be identical to those described for Alternative B.

*Decommissioning*

Social and economic effects of decommissioning Alternative C would be identical to those described for Alternative B.

*Mitigation Measures*

No mitigation measures are identified or required to reduce the effects below the level of significance.

*Residual Impacts and Unavoidable Adverse Effects*

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative C would be avoided or substantially reduced.

### 4.15.13 Alternative D – Cross-Valley Alignment

*Construction*

Alternative D would require nearly identical workforce, construction, and operation activities as Alternative B. Therefore, the social and economic effects of construction of Alternative D are similar to those described under Alternative B. However, Alternative D would occur on a higher proportion of previously disturbed, private land, parallel to an existing SCE transmission line reducing its effects on local quality of life.

*Operation and Maintenance*

The effects resulting from operating and maintaining Alternative D are similar to those discussed under Alternative B.

*Decommissioning*

The effects resulting from decommissioning Alternative D are similar to those discussed under Alternative B.

*Mitigation Measures*

No mitigation measures are identified or required to reduce the effects below the level of significance.

***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative D would be avoided or substantially reduced.

### 4.15.14 Alternative E – New Cross-Valley Alignment

***Construction***

Alternative E would require nearly identical workforce, construction, and operation activities as Alternative B. Therefore, the social and economic effects of construction of Alternative E are similar to those described under Alternative B.

***Operation and Maintenance***

The effects resulting from operating and maintaining Alternative E are similar to those discussed under Alternative B.

***Decommissioning***

The effects resulting from decommissioning Alternative E are similar to those discussed under Alternative B.

***Mitigation Measures***

No mitigation measures are identified or required to reduce the effects below the level of significance.

***Residual Impacts and Unavoidable Adverse Effects***

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative E would be avoided or substantially reduced.

### 4.15.15 Cumulative Effects

The proposed project and alternatives would not cause existing housing or persons to be displaced or necessitate the construction of replacement housing elsewhere. In addition, there would be no impact from construction workers requiring housing that exceeds the supply of local housing or temporary housing facilities and minimal potential changes in the demand for labor or in local employment. As growth has been accounted for in various local and regional plans and projections and no changes to that growth would be likely to occur as a result of the proposed project and alternatives, displacement of and demand for housing and changes in the local labor market would not be considered as cumulative effects and are not discussed further. A cumulative effect would result if the interaction among the effects of the proposed action and other past, present, and reasonably foreseeable actions combined.

***Geographic Scope***

The geographic scope for the analysis of effects on socioeconomics consists of Riverside County and the cities contained therein. This geographic extent is appropriate because socioeconomic factors such as public services and utilities are provided by local jurisdictions or districts, and the regional labor force is expected to come primarily from within Riverside County. Table 4.1-1 and 4.1-2 provide lists of projects within the geographic extent for the socioeconomics cumulative scenario. Table 4.15-1 provides a list of the existing and foreseeable projects that could combine with the DHSP to result in a cumulative effect.

**Table 4.15-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Social and Economic Setting | Riverside County and the cities therein | Impacts to the labor force, impacts on local businesses and residents | All projects listed in Table 4.1-1 and 4.1-2 for regional impacts.<br>Regarding labor force the follow projects were considered:<br>• Desert Sunlight Solar Farm<br>• Silverado Power Solar Project<br>• Palen Solar Power Project<br>• Blythe Solar Power Project<br>• NextEra McCoy<br>• McCoy Soleil<br>• Genesis Solar Energy Project<br>• Rice Solar Energy Project<br>• Blythe Airport Solar I Project<br>• Desert Quartzite<br>• Blythe Mesa Solar I<br>• Rio Mesa Solar Electric |

### *Cumulative Effects Analysis*

Past development and population growth within Riverside County have impacted employment, public services, utilities, and housing demands. Population increases have increased development in Riverside County (mainly in incorporated areas) expanded the demand for housing, and increased the available workforce. Additional development both increases pressure on existing public services and utility systems and provides additional infrastructure to increase capacity and change employment opportunities. Section 3.15, Socioeconomics, describes existing socioeconomic, public services, and utilities conditions within the affected counties and cities.

Tables 4.1-1 through 4.1-2 list past, present, and foreseeable projects in the I-10 corridor in eastern Riverside County. Over 40 projects are proposed in the project area, nearly half of which have been approved or are under construction, and of which about 17 are renewable energy projects. The Desert Sunlight Solar Farm Project (DSSF) is currently under construction immediately north of the proposed DHSP. At least twelve of the proposed projects would permanently disturb over 1,000 acres of land each. The present and foreseeable projects in the project area would significantly increase developed human use of land. These projects include industrial, commercial, and residential developments as well as energy and infrastructure projects.

Construction of the DHSP would draw on the same labor force as other projects listed in Table 4.1-2. Effects would be cumulatively considerable if they would have the potential to combine with similar effects of other past, present, or reasonably foreseeable projects. The largest overlap would be with the DSSF adjacent to the DHSP site. Construction of these two projects would likely occur at the same time, and other proposed projects, including the Genesis Solar Power Project, could also have overlapping construction periods. Although the DHSP (Alternatives 4 through 7 and Alternatives C through E) alone would not be likely to generate population in-migration because of the large available labor pool in Riverside County, the demand for construction employment generated by the proposed project in combination with the other proposed solar and other renewable development in the region could increase the demand for skilled labor beyond the capacity of the region to accommodate it. Under such circumstance, the unmet labor demand could result in in-migration that could change the character of the regional labor force and add new residents to the region.

An extensive cumulative analysis for the region has been recently conducted for the Blythe Solar Power Project (BSPP). This analysis specifically determined the average and peak construction labor needs and supply conditions under the extremely improbable circumstance that peak construction of 13 planned BLM solar projects (including the Blythe, Desert Sunlight, and Desert Harvest projects) occur at the same time (BSPP 2010). The cumulative effects scenario for the Blythe project is predominately the same as that determined for the proposed project and consequently, the analysis and findings of the BSPP are applicable for evaluating the cumulative effects for the project.

The total labor demand for near-term construction (2012 to 2017) of all 13 major solar projects is estimated to be roughly equivalent to an average of 5,000 full-time construction workers per year[1] (BSPP 2010). This level of construction worker labor demand would represent the minimum employment impact on the cumulative impact study area since it assumes that all the BLM solar project construction work would be evenly performed over the five-year period. The analysis also determined that a "worst case" maximum of 11,360 construction workers could be required in the region.

The actual cumulative construction labor force demand within the study region will likely be higher than the 5,000 workers, but likely considerably lower than the 11,360 maximum workers. The average construction period for BLM solar projects is estimated to be 3.6 years and some seasonality may be expected as developers favor construction during the region's cooler winter months. Therefore, conservatively assuming that all the projects would be completed within the five-year cumulative scenario period, the regional labor need for a realistic "worst case condition" would be for four projects to have peak labor needs during the same year.[2]

Given an average construction period of 3.6 years, it would also be expected up to 11 projects would be ongoing during an expected peak labor demand period of 2012 to 2014. Therefore, the peak construction labor demand for the cumulative analysis is estimated to be equivalent to the total construction labor demand for seven solar projects under average construction conditions and four solar projects during peak construction. Altogether, such a rate of solar construction would be expected to require a total of 7,180 construction workers for the various BLM solar projects along the I-10 corridor during the years of major solar project development (BSPP 2010).[3]

---

[1] Construction workforce was estimated from descriptions solar projects where available. The Blythe Solar Power Project (1,000 MW) would require an average of 604 workers with a peak of 1,004 workers; the Genesis Solar Energy Project (250 MW) would require an average of 646 workers with a peak of 1,085 workers; the Palen Solar Power Project (500 MW) would require an average of 566 workers with a peak of 1,145; the Desert Sunlight Solar Farm Project (550 MW) would require an average of 390 to 440 workers with a peak of 540; and Rice Solar Project would require an average of 280 workers with a peak of 438 workers.

[2] The peak construction requirement typically occurs during mid-construction, suggesting that 2012 to 2014 would be most likely to experience peak labor demands.

In addition, there could also be demand for construction workers from the planned non-BLM solar project proposed for the Blythe Airport (requiring an estimated 150 construction workers annually) and other solar development on private land in the Desert Center and Blythe regions. The future construction needs of the several other non-solar projects on BLM land in the region are not known but, altogether, reasonably could be expected to have an annual construction labor need roughly comparable to another solar project (i.e., 530 construction workers) (BSPP 2010).

Therefore, 7,860 construction workers is very conservatively estimated to represent the maximum likely future cumulative labor force demand from the region's planned solar and non-solar development. This estimate assumes all the identified projects would be developed within the five-year cumulative analysis period.[4] The proposed project's maximum potential contribution to this cumulative effect is estimated at 4 percent during its peak construction period. The DHSP's average contribution to the cumulative effect is estimated at 1 percent during its non-peak construction (BSPP 2010).

The total work force of skilled construction workers currently living in eastern Riverside County is estimated to be 15,000. Future demand for 7,860 construction workers would be equivalent to employment for more than half of the current skilled labor force. Such demand for construction workers far exceeds the current unemployed construction labor force but 850 additional skilled construction workers are expected to be added to the eastern Riverside County labor force by 2016. The cumulative labor force demand would still represent more than half the region's currently forecasted future skilled construction labor force (BSPP 2010).

Eastern Riverside County's current unemployed labor force is estimated to be 25,000. The construction worker demand would represent a 31 percent decrease in the regional study area's unemployment level. Although many of the region's currently unemployed residents may lack transferable skills or the physical aptitude to acquire the necessary skills required by the cumulative labor demand, many residents could be adequately trained to be employable. Furthermore, some of the construction work would be more entry-level positions which may be suitable for less skilled workers.

Some of the regional workforce currently employed in other sectors could also have the capabilities to qualify for solar construction work. In such cases, some job transferring may occur, especially since the construction jobs may be expected to be relatively well-paid and attractive for many local residents. The less skilled or desirable jobs vacated by individuals transferring to construction work could be filled by other less skilled unemployed residents. Finally, the cumulative labor force demand on eastern Riverside County also could be partly reduced as projects located in more central Riverside County (such as the DHSP) would be closer to cities and potential workers outside the regional study area. Consequently, these projects could meet some of their labor needs from residents from Desert Hot Springs, Morongo Valley, or Banning.

---

[3] This assumes a typical 470 MW solar projects requiring 527 workers under average construction conditions and 873 workers during their shorter periods of peak construction.

[4] In actuality, construction labor shortages (and related wage escalation) would also be expected to become a possible constraint reducing the pace of future development.

Nonetheless, there could be demand for specialized construction trades that exceed the available labor supply for that specialty within eastern Riverside County. In such a case, it is assumed that those job positions would be filled by workers relocating into the region from elsewhere. Other social and economic impacts analyses for solar projects have suggested that a 15 percent rate of in-migration would be a conservative and reasonable assumption. Such a proportion of in-migration applied to the projected maximum future cumulative labor force demand would suggest that up to 1,165 construction workers [could require temporary housing in the region (BSPP 2010). The majority of these temporarily relocated workers likely would commute on a weekly basis between home and the project study area. It is unlikely that they would relocate their families for the duration of construction.

If construction workers were willing to commute 1 hour daily to the site, the supply of potential hotel/motel rooms would be greater than 1,925 (capacity of Blythe and Indio alone). Given that some workers would be willing to share rooms, the number of potential workers who could be accommodated would be even greater. In addition to the available lodging in the local area, there are also potentially considerable under-utilized homes in the local area that may be suitable for rent by construction workers seeking local housing. As shown in Table 3.15-3, 960 homes are currently estimated to be vacant in Blythe and another 5,593 local housing units may be available within Indio, totaling 6,553 in the 1 hour commute window and 102,507 units in Riverside County as a whole. Given that some construction workers could be willing to share homes to reduce their lodging costs, there would be more than sufficient temporary housing for an expected 1,165 construction workers.

Some of the solar developers might also choose to develop onsite housing facilities for their construction work forces. For example, on-site worker accommodations are planned as part of the Rice Solar project by its developer.[5] The Eagle Mountain Pumped Storage project near Desert Center is located at a former mine site that has housing previously used by mine workers. On-site accommodations would reduce the load on local hotels, motels, and houses.

In summary, there is potential for short-term adverse cumulative social and economic effects in the region associated with the demand for skilled construction labor for the dozen solar projects proposed for future development within eastern Riverside County. Analysis suggests that future construction labor demand would be greatest from 2012 to 2014, and may be sufficient to exceed the existing local work force within eastern Riverside County; hence, there may be increased demand for temporary local housing from construction workers seeking to commute weekly to the local area. However, given the estimated availability of lodging and possible rental housing, it is expected that there will be adequate and suitable housing to meet any future construction worker temporary housing demand. Therefore, no adverse social or economic effects would be expected.

Socioeconomic effects on local businesses and residents adjacent to the project area or along construction transportation routes would result from visual impacts, vehicular or pedestrian access delays or detours, land use impacts, or health and safety concerns. The extent that these impacts would affect the perceived quality of life in the areas adjacent to the DHSP (Alternatives 4 through 7 and Alternatives C through E) would be minimized by making the public aware of construction timing, duration, and location so that they may better plan for construction-related access issues. It is expected that the added daily traffic from construction vehicles would not have a noticeable effect on traffic volumes given the existing volumes of car and truck traffic on I-10, even with partially overlapping construction periods for several projects. The cumulative effects of the DHSP (Alternatives 4 through 7 and Alternatives C through E) in combination with reasonably foreseeable projects on each of these resource areas are analyzed in this chapter in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). Any associated contribution to a short-term loss of local business revenue would not be cumulatively significant, and any contribution of DHSP (Alternatives 4 through 7 and Alternatives C through E) to perceived social effects due to construction activity along with the listed cumulative projects would be minor and temporary for the duration of the project construction.

---

[5] Development of temporary worker housing facilities is more likely to be possible at projects (such as Rice) that are located on private property.

Construction and operation of DHSP (Alternatives 4 through 7 and Alternatives C through E) would not contribute to temporary or permanent displacements of businesses or residents in Riverside County that could occur as a result of the projects identified in Table 4.1-2. In addition, the DHPS would contribute to local expenditures on materials and supplies for construction, which, in combination with other past, ongoing, and future projects, would generate expenditures, income, and employment in the local economy, stimulating economic growth.

The incremental effects of construction and operation of the DHSP (Alternatives 4 through 7 and Alternatives C through E) would not have a substantial effect on cumulative socioeconomic and environmental justice resources.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative socioeconomic and environmental justice effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.15.16 CEQA Considerations

#### *CEQA Significance Criteria*

Under CEQA, the proposed project would have a significant impact on Socioeconomics if it would:

SE-1 Displace substantial numbers of people or existing housing on a permanent basis, necessitating the construction of replacement housing outside the local region;

SE-2 Induce short-term or long-term population growth to an extent that could not be accommodated by local housing, local services, and infrastructure, including:

SE-2a Generating solid waste or wastewater that exceeds the capacity of existing facilities to accommodate;

SE-3b Requiring the construction of new public service facilities or require the expansion of existing facilities to accommodate an increased need for fire protection, police protection, schools, or other public services;

SE-3 Cause a substantial long-term reduction in revenue for local businesses, government agencies, or Indian tribes;

SE-4 Result in a substantial reduction in the employment and incomes of local residents;

SE-5 Substantially alter the lifestyles or quality of life of populations using or residing in proximity to the proposed project;

SE-6 Result in a barrier between local residents and the local services and facilities used by these residents;

SE-7 Conflict with applicable land use plans and policies associated with socioeconomics, public services, or utilities; or

SE-8 Disrupt existing utility systems.

For the Proposed Action, all of the CEQA significance criteria listed above were determined to be inapplicable or to result in no impact as explained below.

***CEQA Significance Determination***

**Alternative 1.** Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no social or economic impacts would occur.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the Desert Harvest Solar Project would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No social or economic impacts from the Desert Harvest Solar Project would occur.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the Desert Harvest Solar Project would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No social or economic impacts from the Desert Harvest Solar Project would occur.

**Alternative 4.** As described above in Section 4.15.6, Alternative 4 would not displace substantial numbers of people or housing (SE-1) and would not require additional housing infrastructure (SE-2): the workforce would be small relative to regional supply, most workers would commute from off-site, current accommodations are adequate to support potential in-migration, and the bulk of the workforce would be present during construction activities only. Given this, project impacts would not generate unmanageable solid waste or wastewater (SE-3b). The influx of potential consumers would likely generate economic benefit for local community through increased purchase of goods and services, and would contribute to local employment (SE-4). The small number of temporary workers is not likely to substantially lower quality of life of local residents (SE-5) or remove residents from local services (SE-6).

The project's fire management plan, security lighting, and health and safety training would minimize need for expansion of public services (SE-3). Utility services would also operate uninterrupted during construction, operation and maintenance, and decommissioning of Alternative 4 and would not be impacted by its presence (SE-8). The project location on BLM multiple use class M land would not conflict with any land use plans associated with socioeconomics, public services, or utilities (SE-7).

As described in Section 4.15.15, though some minor cumulative impacts could occur during the period of construction, the effects of construction and operation of the DHSP would not have a cumulatively considerable impact on socioeconomic resources when combined with the past, existing, and future projects identified in Table 4.1-1 and Table 4.1-2.

**Alternative 5.** As described in Section 4.15.7 of this EIS, potential social and economic effects of Alternative 5 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

**Alternative 6.** As described in Section 4.15.8 of this EIS, potential social and economic effects of Alternative 6 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

**Alternative 7.** As described in Section 4.15.8 of this EIS, potential social and economic effects of Alternative 7 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

**Alternative A.** Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and impacts of the gen-tie line would not occur, and BLM would continue to manage the site under the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, no social or economic impacts would occur.

**Alternative B.** As described in Section 4.15.11 of this EIS, potential social and economic effects of Alternative B would be of the same type as those described under Alternative 4.

However, because of the smaller workforce and scope of construction operations, the social and economic impacts of Alternative B would be substantially less intense than those described under Alternative 4. As such, social and economic impacts of construction, operation and maintenance, and decommissioning would be less than significant with no mitigation required.

**Alternative C.** As described in Section 4.15.12 of this EIS, potential social and economic effects of Alternative C would be the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

**Alternative D.** As described in Section 4.15.13 of this EIS, potential social and economic effects of Alternative D would be largely the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

**Alternative E.** As described in Section 4.15.14 of this EIS, potential social and economic effects of Alternative E would be largely the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

### *Growth-Inducing Effects*

Section 15126.2(d) of the State CEQA Guidelines provides the following guidance on growth-inducing impacts: a project is identified as growth inducing if it "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Potential growth-inducing components of the proposed project addressed in this section relate to employment and potential local population growth, and increased power generation and potential regional population growth.

#### *Employment and Population Growth*

**Construction Workforce.** The proposed project would require an average construction workforce of 100 workers per day, with a peak number of workers estimated at 250 workers. Workers are expected to be hired primarily from Riverside County and some from adjacent counties, with the majority of the workforce anticipated from Palm Springs, Desert Center, and Blythe.

The vacancy rate and the availability of temporary accommodation in the project study area indicate that the area has the capacity to temporarily house this workforce. Because the project study area has sufficient available hotel and housing vacancies, temporary direct and indirect population growth impacts would not result from worker relocation.

As shown in Section 3.15.2 (Existing Conditions, Employment and Income), the employment profile of the project study area, 2008, Riverside County has a construction labor force of 62,194 workers. A maximum of 250 workers hired from within the County would represent 0.5 percent of the total construction labor force. While a single project utilizing 0.5 percent of the total construction labor force of the project study area would be considered a substantial demand, considering the high unemployment rate in the area, this would be a beneficial impact in the project study area. As a temporary component, the construction phase would not trigger additional population growth in the area.

**Operational Workforce**. Operation of the proposed project would require up to 8 full-time staff. Employees are expected to be drawn from the labor force within Riverside County. While it is speculative to determine where the full-time staff would choose to live, if the entire staff of 8 were hired from outside the project study area, up to 8 households could potentially relocate to the area, representing a population increase of an estimated 23 individuals or a 0.001 percent increase in Riverside County's population. Considering the less-than-2 hour drive between Desert Center and Palm Springs, Indio, and Blythe, it is anticipated that few workers would relocate to the area permanently.

### *Increased Power Generation*

While the proposed project would contribute to energy supply, which indirectly supports population growth, development of the proposed project is a response to the State's need for renewable energy to meet its Renewable Portfolio Standard. Unlike a gas-fired power plant, the proposed project is not being developed as a source of base-load power that would typically be developed to support a growth in demand for electricity. The power generated would be added to the State's electricity grid, with the intent that it would displace fossil fuel fired power plants and their associated greenhouse gas emissions.

Riverside County planning documents permit and anticipate a certain level of growth, along with attendant growth in energy demand. The County General Plan Land Use Element addresses growth states that Riverside County has a vision future growth should be directed to areas that are well served by public facilities and services and preserve significant environmental features such as drainage ways, lands subject to extreme natural hazards, or lands that offer scenic beauty (Riverside County 2003).

The proposed project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth, because (1) the additional energy would be used to ease the burdens of meeting existing statewide energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so diverse that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis.

# Section 4.16

## Environmental Justice

## 4.16 ENVIRONMENTAL JUSTICE

### 4.16.1 Methodology for Analysis

In the analysis, the percentages of minority and low-income populations were examined for the area in the vicinity of the proposed Desert Harvest Solar Project (DHSP). For purposes of consistency and in compliance with the BLM guidelines, U.S. Census data are used to determine minority and low-income population percentages in the affected area. The unit of analysis of potential impact on minority populations and low-income populations is the census tract or block group. After an initial screening-level analysis of the project area to determine low-income and minority percentage areas, a jurisdictional screening-level analysis is conducted. If the jurisdiction has a population of 50 percent or greater for either the low-income or minority categories, it is identified for more detailed analysis. Similarly, if the jurisdiction has a population meaningfully greater (50 percent or greater) than the minority or low-income population percentage in the general population of the jurisdiction, it is identified for more detailed analysis. Identification of an area which would be disproportionately affected by the project does not by itself constitute an environmental justice impact. The conclusions of the analyses of effects for all resources and issues throughout Chapter 4 are then reviewed to identify impacts, if any, to aspects of the environmental justice population, such as air quality, noise, visual impacts, socioeconomic impacts, public health and safety, or others.

An area within one-half mile (0.5 miles) of the proposed project site is the project study area in this section. The project study area may change depending on the types of effects analyzed; however, using an affected area of 0.5 miles, rather than 1 or 2 miles identifies localized effects of the project. By looking at the localized effects (in this case, within 0.5 miles) rather than the effects that would impact everyone residing in a region equally (such as an area of greater than one mile) identifies disproportionate project-specific effects to minority and low-income populations. Effects that impact areas outside of 0.5 miles, such as visual effects and certain air and water quality effects, would impact the greater region. Looking at such a wide area would not identify any disproportionate effects to minority or low-income populations. By setting the project study area at 0.5 miles for environmental justice, the analysis will focus on the project effects specific to the populations within the vicinity of the project route rather than the region as a whole.

The proposed project or its alternatives would result in an environmental justice effect if *both* of the following are true: (1) there is an unavoidable adverse impact to humans, and (2) the affected area contains a minority or low-income population (as defined in Section 3.16.2). Unavoidable adverse impacts are identified where mitigation measures, which are presented in each section, are not adequate to ensure that effects associated with construction and operation of the proposed project or its alternatives are sufficiently minimized or avoided.

### 4.16.2 Applicant Measures

No Applicant Measures have been proposed to reduce environmental justice effects.

### 4.16.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects would not occur.

### 4.16.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.16.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.16.6 Alternative 4 – Proposed Solar Project

***Construction***

***Direct Effects***

As described in Section 3.16, Environmental Justice, the 2000 U.S. Census found the population in the vicinity of the proposed project (located in Census Tract 458 Block Groups 3, 5, and 6) to have an overall minority population of 71.15 percent. The 2010 U.S. Census found the population (now consolidated into a single block group making up the entirety of Census Tract 469) to have a total minority population of 55.41 percent. In both cases, this is above the 50 percent threshold identified by EPA (1998) for identifying a population of concern in an environmental justice analysis. Based on the 2000 U.S. Census data for poverty of the population in the vicinity of the proposed project is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 having 4.3 percent of the population below the poverty level.

As Census Tract 469 (previously Census Tract 458 Block Groups 3, 5, and 6) is a large, rural census tract covering hundreds of square miles of land, evaluating the environmental justice effects of Alternative 4 examined populations in the immediate vicinity of the DHSP. Alternative 4 would be located within 0.5 miles of 10 Census Blocks, of which only one has a resident population (Block 1412). Additionally, the construction access route off of Interstate 10 (I-10) would be located within 0.5 miles of another 11 populated Census Blocks with a total population of 170 for all 12 Census Blocks. Of these 170 residents, 37 are identified as minority (22 percent) (U.S. Census Bureau 2010). As the minority and low-income population in the vicinity of the proposed project and construction truck route would be less than 50 percent, it is unlikely that Alternative 4 would disproportionately adversely affect these populations.

### *Indirect Effects*

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

## *Operation and Maintenance*

### *Direct Effects*

As described above for construction effects, the proposed project would be located within 0.5 miles of one populated Census Block and the commute route for operational personnel would pass within 0.5 miles of another 11 populated Census Blocks. As the population in these Census Blocks would be approximately 22 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative 4 would disproportionately adversely affect these populations.

### *Indirect Effects*

As the population in the vicinity of Alternative 4 would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative 4 disproportionately adversely affect these populations.

## *Decommissioning*

### *Direct Effects*

Decommissioning activities associated with Alternative 4 would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative 4 would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

### *Indirect Effects*

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

## *Mitigation Measures*

No mitigation measures are required to reduce effects related to special designations.

## *Residual Impacts and Unavoidable Adverse Effects*

There would be no unavoidable significant environmental justice effects as a result of Alternative 4.

### 4.16.7 Alternative 5 – Solar Project Excluding WHMA

***Construction***

***Direct Effects***

While Alternative 5 would exclude the portion of the site within the Palen-Ford WHMA, the boundaries of the project would otherwise be the same as described for Alternative 4 and construction access routes would remain the same. The populations affected by Alternative 5 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 5 would be the same as those described for Alternative 4.

***Indirect Effects***

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

***Operation and Maintenance***

***Direct Effects***

As described above for construction of Alternative 5, operation and maintenance of Alternative 5 would result in the same effects as described for Alternative 4.

***Indirect Effects***

Indirect effects resulting from operation and maintenance of Alternative 5 would also be the same as described for Alternative 4.

***Decommissioning***

***Direct Effects***

Direct effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4.

***Indirect Effects***

Indirect effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4.

***Mitigation Measures***

No mitigation measures are required to reduce effects related to special designations.

***Residual Impacts and Unavoidable Adverse Effects***

There would be no unavoidable significant environmental justice effects as a result of Alternative 5.

### 4.16.8 Alternative 6 – Reduced Footprint Solar Project

#### *Construction*

##### *Direct Effects*

While Alternative 6 would exclude the separate southwestern parcel of the site, the boundaries of the project would otherwise be the same as described for Alternative 4. The populations affected by Alternative 6 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 6 would be the same as those described for Alternative 4.

##### *Indirect Effects*

Indirect effects resulting from construction of Alternative 6 would also be the same as described for Alternative 4.

#### *Operation and Maintenance*

##### *Direct Effects*

As described above for construction of Alternative 6, operation and maintenance of Alternative 6 would result in the same effects as described for Alternative 4.

##### *Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative 6 would also be the same as described for Alternative 4.

#### *Decommissioning*

##### *Direct Effects*

Direct effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

##### *Indirect Effects*

Indirect effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

#### *Mitigation Measures*

No mitigation measures are required to reduce effects related to special designations.

#### *Residual Impacts and Unavoidable Adverse Effects*

There would be no unavoidable significant environmental justice effects as a result of Alternative 6.

### 4.16.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

***Construction***

***Direct Effects***

While Alternative 7 would exclude the separate southwestern parcel of the site, the boundaries of the project would otherwise be the same as described for Alternative 4. The populations affected by Alternative 7 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 7 would be the same as those described for Alternative 4.

***Indirect Effects***

Indirect effects resulting from construction of Alternative 7 would also be the same as described for Alternative 4.

***Operation and Maintenance***

***Direct Effects***

As described above for construction of Alternative 7, operation and maintenance of Alternative 7 would result in the same effects as described for Alternative 4.

***Indirect Effects***

Indirect effects resulting from operation and maintenance of Alternative 7 would also be the same as described for Alternative 4.

***Decommissioning***

***Direct Effects***

Direct effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

***Indirect Effects***

Indirect effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

***Mitigation Measures***

No mitigation measures are required to reduce effects related to special designations.

***Residual Impacts and Unavoidable Adverse Effects***

There would be no unavoidable significant environmental justice effects as a result of Alternative 7.

### 4.16.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed gen-tie would not be approved by the BLM, and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the gen-tie route consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects would not occur.

### 4.16.11 Alternative B – Proposed Gen-Tie (Shared Towers)

*Construction*

*Direct Effects*

Census Tract 469 covers hundreds of square miles of land, so the analysis of environmental justice effects of Alternative B examined populations in the immediate vicinity of the gen-tie route. Alternative B and the access route for construction traffic would be located within 0.5 miles of 11 populated Census Blocks with a total population of 164. Of these 164 residents, 33 are identified as minority (20 percent) (U.S. Census Bureau 2010). As described for Alternative 4, the population in the vicinity of the proposed project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of the proposed project site and construction truck route would be less than 50 percent, it is unlikely that Alternative B would disproportionately adversely affect these populations.

*Indirect Effects*

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

*Operation and Maintenance*

*Direct Effects*

As described above for construction effects, the Alternative B gen-tie route would be located within 0.5 miles of 11 populated Census Blocks. As the population in these Census Blocks would be approximately 20 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative B would disproportionately adversely affect these populations.

*Indirect Effects*

As the population in the vicinity of the Alternative B gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative B disproportionately adversely affect these populations.

### Decommissioning

#### *Direct Effects*

Decommissioning activities associated with Alternative B would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative B would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

#### *Indirect Effects*

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

### Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

### Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative B.

## 4.16.12 Alternative C –Separate Transmission Towers within Same ROW

### Construction

#### *Direct Effects*

While Alternative C would require construction of a second set of transmission lines in the Desert Sunlight gen-tie corridor, the route of the transmission line would be the same as described for Alternative B and construction access routes would remain the same. The populations affected by Alternative C would be the same as described for Alternative B. Consequently, the effects resulting from construction of Alternative C would be the same as those described for Alternative B.

#### *Indirect Effects*

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

### Operation and Maintenance

#### *Direct Effects*

As described above for construction of Alternative C, operation and maintenance of Alternative C would result in the same effects as described for Alternative B.

#### *Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative C would also be the same as described for Alternative B.

### Decommissioning

#### Direct Effects

Direct effects associated with decommissioning activities for Alternative C would be the same as those described for Alternative B.

#### Indirect Effects

Indirect effects associated with decommissioning activities for Alternative C would be the same as those described for Alternative B.

### Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

### Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative C.

## 4.16.13 Alternative D – Cross-Valley Alignment

### Construction

#### Direct Effects

Alternative D and the access route for construction traffic would be located within 0.5 miles of 13 populated Census Blocks with a total population of 179. Of these 179 residents, 37 are identified as minority (21 percent) (U.S. Census Bureau 2010). As also described above for Alternative 4, the population in the vicinity of the project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of Alternative D and construction truck route would be less than 50 percent, it is unlikely that Alternative D would disproportionately adversely affect these populations.

#### Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

### Operation and Maintenance

#### Direct Effects

As described above for construction effects, the Alternative D gen-tie route would be located within 0.5 miles of 13 populated Census Blocks. As the population in these Census Blocks would be approximately 21 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative D would disproportionately adversely affect these populations.

### *Indirect Effects*

As the population in the vicinity of the Alternative D gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative D disproportionately adversely affect these populations.

### *Decommissioning*

### *Direct Effects*

Decommissioning activities associated with Alternative D would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative D would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

### *Indirect Effects*

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

### *Mitigation Measures*

No mitigation measures are required to reduce effects related to special designations.

### *Residual Impacts and Unavoidable Adverse Effects*

There would be no unavoidable significant environmental justice effects as a result of Alternative D.

## 4.16.14 Alternative E – New Cross-Valley Alignment

### *Construction*

### *Direct Effects*

Alternative E and the access route for construction traffic would be located within 0.5 miles of 14 populated Census Blocks with a total population of 194. Of these 194 residents, 42 are identified as minority (22 percent) (U.S. Census Bureau 2010). As also described above for Alternative 4, the population in the vicinity of the project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of Alternative E and construction truck route would be less than 50 percent, it is unlikely that Alternative E would disproportionately adversely affect these populations.

### *Indirect Effects*

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

### Operation and Maintenance

#### Direct Effects

As described above for construction effects, the Alternative E gen-tie route would be located within 0.5 miles of 14 populated Census Blocks. As the population in these Census Blocks would be approximately 22 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative E would disproportionately adversely affect these populations.

#### Indirect Effects

As the population in the vicinity of the Alternative E gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative E disproportionately adversely affect these populations.

### Decommissioning

#### Direct Effects

Decommissioning activities associated with Alternative E would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative E would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

#### Indirect Effects

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

### Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

### Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative E.

## 4.16.15 Cumulative Effects

### Geographic Scope

As described in Section 4.16.1, the project study area for environmental justice effects would be jurisdictions within 0.5 mile of the proposed project or its alternatives. Similarly, for environmental justice effects associated with the proposed project or its alternatives to combine with those of other projects, the environmental justice effects of the other projects would have to overlap the affected area of the proposed project or its alternatives. Assuming that other projects would also result in environmental justice effects within one-half mile of the project area, to overlap with the proposed project's affected area, these other projects would need to be within one mile of the proposed project or its alternatives. Additionally, as any environmental justice effects generated by the proposed project or its alternatives would be limited to occurring within the lifespan of the project, cumulative environmental justice effects would also occur only during the lifespan of the project.

**Table 4.16-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Environmental Justice | 0.5 mile of the proposed project or its alternatives | Significant environmental impacts in the vicinity of the site | • Interstate 10<br>• Devers–Palo Verde No. 1 Transmission Line<br>• West-wide Section 368 Energy Corridors<br>• BLM Recreational Opportunities<br>• Blythe Energy Project Transmission Line<br>• Chuckwalla Valley Raceway<br>• Desert Sunlight Solar Farm Project<br>• Silverado Power Solar Project<br>• Devers–Palo Verde No. 2 Transmission Line<br>• Desert Southwest Transmission Line<br>• Sol Orchard<br>• SCE Red Bluff Substation |

## *Cumulative Effects Analysis*

### *Existing Cumulative Conditions*

This section discusses the past projects that have occurred in the cumulative analysis area described above, in addition to ongoing projects in the area. Table 4.1-1 provides a list of past and present development in the proposed project vicinity. As the cumulative analysis area for environmental justice effects is within 0.5 mile of the project area, past and present development contributing to the cumulative conditions for environmental justice in the cumulative analysis area would include:

- Interstate 10,
- Devers–Palo Verde No. 1 Transmission Line,
- West-wide Section 368 Energy Corridors,
- BLM Recreational Opportunities,
- Blythe Energy Project Transmission Line, and,
- Chuckwalla Valley Raceway.

### *Reasonably Foreseeable Future Projects*

Tables 4.1-2 provides a listing of reasonably foreseeable projects, including other proposed or approved renewable energy projects, various BLM-authorized actions/activities, proposed or approved projects within the County's jurisdiction, and other actions/activities that the Lead Agencies consider to be reasonably foreseeable. Of the cumulative projects listed in Table 4.1-2, the following foreseeable projects would be located in the cumulative effects area for environmental justice:

- Desert Sunlight Solar Farm Project,
- Silverado Power Solar Project
- Devers–Palo Verde No. 2 Transmission Line,
- Desert Southwest Transmission Line,
- Sol Orchard, and
- SCE Red Bluff Substation.

Most of the projects presented in Tables 4.1-1 and 4.1-2 have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not yet been completed for projects determined to be located within the geographic extent of this cumulative analysis, the potential effects of all projects comprising the existing and reasonably foreseeable cumulative conditions relevant to the proposed DHSP were considered in the cumulative effects analyses in this EIS.

The environmental justice analyses for the Desert Sunlight Solar Farm Project, Devers–Palo Verde No. 2 and Desert Southwest Transmission Lines and the SCE Red Bluff Substation identified no high-minority or low-income populations within one-half mile of the project's transmission ROW in the vicinity of the proposed project or its alternatives. No environmental justice analysis has been performed for the Sol Orchard project at this time. As the minority and low-income populations within one-half mile of the proposed project or its alternatives would be less than 50 percent and lower than the respective overall populations in Riverside County, and no effects to high-minority and low-income populations would occur in the vicinity of the proposed project or its alternatives as a result of the Devers–Palo Verde No. 2 Transmission Line, Desert Southwest Transmission Line, and SCE Red Bluff Substation, effects associated with construction, operation and maintenance, or decommissioning would not result in disproportionate adverse effects on minority or low-income populations and the project/alternatives will not contribute to cumulative effects.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative environmental justice effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.16.16 CEQA Considerations

Appendix G of the State CEQA Guidelines does not provide significance criteria for environmental justice. No significance determination has been made.

# Section 4.17

## Special Designations

## 4.17 SPECIAL DESIGNATIONS

### 4.17.1 Methodology for Analysis

This section discusses effects on lands with special designations that would occur with implementation of the proposed project or alternatives. Direct effects may occur during construction from noise, fugitive dust, and lighting that could affect users in designated Areas of Critical Environmental Concern (ACEC) and/or Wilderness Areas (WA). Direct effects would occur if activities would disturb resources for which a special designations area was designated, in this case, the archaeological values in the Alligator Rock ACEC, the desert lily plants or habitat in the Desert Lily Preserve ACEC, desert tortoise in the Chuckwalla Desert Wildlife Management Area (DWMA), or wildlife in the Palen-Ford Wildlife Habitat Management Area (WHMA). Other direct effects would include impacts to the wilderness character of designated WAs, or visual impacts in WAs. Visual effects are discussed in further detail in Section 4.19. For cultural resources, both NEPA and Section 106 of the National Historic Preservation Act (NHPA) apply. A direct effect under Section 106 is limited to the direct physical disturbance of a historic property. Effects that are immediate but not physical in character, such as visual intrusion, and reasonably foreseeable effects that may occur at some point subsequent to the implementation of the proposed undertaking are referred to in the Section 106 process as indirect effects. Unavoidable adverse impacts are those that would occur after implementation of all incorporated mitigation measures. Unavoidable adverse impacts do not include temporary or permanent impacts which would be mitigated.

### 4.17.2 Applicant Measures

No Applicant Measures have been proposed to reduce impacts to special designations.

### 4.17.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. As a result, impacts due to the DHSP would not occur.

### 4.17.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.17.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.17.6 Alternative 4 – Proposed Solar Project

***Construction***

***Direct Effects***

Under this alternative, the BLM would approve Alternative 4 and would amend the CDCA Plan of 1980, as amended. Alternative 4 would affect 231 acres of Blue Palo Verde-Ironwood Woodland in the Palen-Ford WHMA, 78.5 acres of State-jurisdictional streambeds within Creosote Bush Scrub habitat in the Palen-Ford WHMA, and 976.5 acres of Creosote Bush Scrub habitat in the Palen-Ford WHMA. Alternative 4 would be within 1.8 miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and fewer than six miles from Alligator Rock ACEC.

Effects to vegetation and wildlife in special designation areas, including onsite impacts in the Palen-Ford WHMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife. Impacts to vegetation and wildlife in the Palen-Ford WHMA would be addressed with a series of mitigation measures (MM VEG-1 through MM VEG-10). Some of these measures would mitigate adverse impacts to vegetation resources by preventing the impacts from occurring and others would minimize adverse impacts on the project site and prevent them in adjacent off-site habitats. MM VEG-6 would require acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site. This measure, while compensating for impacts to vegetation resources, would not prevent those impacts from occurring. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources.

Fugitive dust, traffic and lighting from construction would create temporary visual distractions for users of the Joshua Tree Wilderness Area, Chuckwalla Mountains Wilderness Area, and Desert Lily Preserve ACEC areas. In particular, noise and nighttime lighting could affect the wilderness experience within these areas, making human presence more noticeable. Fugitive dust from construction would create a temporary visual distraction for a limited number of users of portions of these areas, although implementation of Mitigation Measure VR-1 would control generation of dust clouds. Longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

As construction of Alternative 4 would not result in any direct off-site impacts to cultural resources, the Alligator Rock ACEC would not be affected by construction of Alternative 4.

### *Indirect Effects*

As described in Section 4.6, Cultural Resources, with regard to the North Chuckwalla Petroglyph District, indirect visual and audible impacts along with vandalism associated with increased visitation were identified for the construction of Desert Sunlight Solar Farm, these impacts have not been evaluated for the Alligator Rock ACEC for the DHSP. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with the DHSP will be identified. This determination will be presented in the Final EIS for the DHSP.

For other special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, and Desert Lily Preserve ACEC, indirect construction effects would include the introduction of invasive weeds, herbicide drift, and off-site hydrology impacts. Weeds introduced and/or spread through project-related activities could have indirect impacts not just to the immediate area on and surrounding the site, and if extensive, could impact regional special management areas including Joshua Tree Wilderness Area. This adverse impact would be minimized by Mitigation Measure MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9, as well as other limitations described in the Draft IWMP, would avoid potential adverse effects of herbicides to native vegetation and special-status plants. Implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources) and Mitigation Measure MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce the alteration of water quality, hydrology, and depth to groundwater that would affect habitat in the Chuckwalla DWMA, Palen-Ford WHMA and Desert Lily Preserve ACEC.

The construction of Alternative 4 would also result in indirect visual effects related to an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer, and therefore, the resulting visual effect would not be substantial.

## *Operation and Maintenance*

### *Direct Effects*

A limited number of visitors to a portion of Joshua Tree Wilderness Area and Desert Lily Preserve ACEC would experience adverse effects to their opportunities for solitude. There would also be visual effects from the strong form, line, and color contrast of the solar panels and other structures and from sunlight glint and glare reflecting from these structures. While operation and maintenance would not cause any direct effect on the Joshua Tree Wilderness Area, visitors traversing the southwest areas of the Coxcomb Mountains would experience permanent direct effects. These effects vary by viewing location, and are discussed in detail in Section 4.19, Visual Resources.

During operation and maintenance (O&M) of the O&M facility and substation, lights would be shielded, would be directed downward, and in the case of the substation would normally be off, but would be motion sensitive to minimize glare in surrounding areas. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5.

Project O&M would not affect plants or wildlife on site after those plants or habitat are removed or damaged during initial construction. Vegetation management for facility operation could cause accidental off-site impacts due to herbicide drift or off-site hydrology impacts. Long-term impacts to habitat can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation, require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project. Effects to vegetation and wildlife special designation areas, including onsite impacts in the Palen-Ford WHMA and Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

As O&M of Alternative 4 would not result in off-site impacts to cultural resources, the Alligator Rock ACEC would not be directly affected by Alternative 4.

### *Indirect Effects*

Indirect visual and audible impacts to the North Chuckwalla Petroglyph District along with vandalism associated with increased visitation were identified for operation of Desert Sunlight Solar Farm. These impacts have not been evaluated for the Alligator Rock ACEC for the DHSP. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with the DHSP will be identified. This determination will be presented in the Final EIS for the DHSP.

As described in Section 4.3, Biological Resources – Vegetation, the introduction or spread of invasive weeds and, potentially, depletion of groundwater and subsequent effects to groundwater-dependent vegetation could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources).

## ***Decommissioning***

### *Direct Effects*

Decommissioning of Alternative 4 would cause temporary, indirect disturbance to a limited number of users of the Joshua Tree Wilderness Area and Desert Lily Preserve ACEC similar to those described for construction of the project. Facilities removal during decommissioning would be expected to take place within the approved project footprint and would not be expected to remove or degrade vegetation, special-status plants, or state-jurisdictional streambeds beyond the project boundaries, except through the effects of dust or similar direct off-site impacts. These impacts can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6, which would apply during decommissioning as they would during construction. If the ultimate re-use of the proposed project site is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to habitat. Effects to vegetation and wildlife in the Chuckwalla DWMA and Palen-Ford WHMA are described in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

Short-term, deconstruction activities would result in visual impacts similar to construction with the visible intrusion of equipment, materials, deconstruction activities, and increased road traffic. Longer-term, the complete removal of the facility would leave a very prominent visual effect over the entire site due to the strong color and line contrast created between graded, disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the Applicant to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

### *Indirect Effects*

With regard to the North Chuckwalla Petroglyph District, indirect visual and audible impacts along with vandalism associated with increased visitation were identified for decommissioning of Desert Sunlight Solar Farm but these impacts have not been evaluated for the Alligator Rock ACEC for the DHSP. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with the DHSP will be identified. This determination will be presented in the Final EIS for the DHSP. After Alternative 4 has been decommissioned, however, any permanent visual effects described for operation and maintenance of the project would be removed and the site would return to its natural undeveloped state.

Indirect decommissioning effects on biological resources in special designation areas would be similar to those described for construction. Impacts associated with invasive weed introduction, herbicide drift, and hydrologic impacts would be reduced through the implementation of Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources)..

### *Mitigation Measures*

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

### *Residual Impacts and Unavoidable Adverse Effects*

While compensating for impacts to vegetation resources, MM VEG-6 would not prevent those habitat impacts from occurring in Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily ACEC, and Joshua Tree Wilderness Area. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources (including habitat and streambed values). Residual adverse impacts (i.e., impacts remaining after application of mitigation) to vegetation resources would be (1) the net loss of vegetation and habitat on the project site; (2) the direct effects of dust, and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the facility; (3) the net loss of special-status plant occurrences on the project site; and (4) the net loss of state-jurisdictional streambeds and associated habitat on the site and, potentially, off-site, if groundwater pumping causes off-site impacts.

At this time, it is unknown if impacts on cultural resources in Alligator Rock ACEC as a result of Alternative 4 would occur or if they can be satisfactorily mitigated because Native American consultations are still in progress, as are NRHP-eligibility evaluations, treatment protocols, and CRHR-eligibility recommendation concurrence. Consultations may raise issues that cannot be resolved through mitigation measures. Prescribed treatments may resolve adverse effects under Section 106. Given the scale and impact to several of the resources identified, impacts under NEPA and CEQA may remain despite implementation of Applicant Measures and mitigation measures.

It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual effects associated with land scarring and vegetation clearance from Alternative 4 would remain for many years given the difficulty of successful revegetation in an arid environment. Given the scale of the solar facility and the availability of considerable visual access to the Alternative 4 area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effects associated with introduced visual contrast from installation of Alternative 4 would remain for the life of the project. Additionally, given the scale of Alternative 4 and the availability of elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effect associated with the prominence of Alternative 4 and the introduction of industrial character and structural visual contrast to the field of view from backcountry scenic vistas would still result in substantial adverse visual effects. Although the levels of change caused by Alternative 4 would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These would result in an unavoidable, long-term adverse effect to visual resources.

### 4.17.7 Alternative 5 – Solar Project Excluding WHMA

***Construction***

***Direct Effects***

Under this alternative, the BLM would approve Alternative 5 and would amend the CDCA Plan of 1980, as amended. While Alternative 5 would exclude the portion of the site within the Palen-Ford WHMA, the boundaries of the project would otherwise be the same as described for Alternative 4. Under Alternative 5, the project site would eliminate all direct impacts to the Palen-Ford WHMA. Alternative 5 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Consequently, the effects resulting from construction of Alternative 5 would be the same as those described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

***Indirect Effects***

Indirect effects on Alligator Rock associated with Alternative 5 would be the same as described for Alternative 4.

While direct biological resource impacts in the Palen-Ford WHMA would not occur under Alternative 5, due to its location adjacent to the facility site, the indirect effects described above for Alternative 4 would still affect the Palen-Ford WHMA. As described above for Alternative 4, the introduction or spread of invasive weeds and, potentially, depletion of groundwater and subsequent effects to groundwater-dependent vegetation could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources).

***Operation and Maintenance***

***Direct Effects***

As described above for construction of Alternative 5, operation and maintenance of Alternative 5 would result in the same effects as described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

***Indirect Effects***

O&M impacts of Alternative 5 would be the same as described for Alternative 4 with regard to impacts to the Alligator Rock ACEC.

As described above for construction, while Alternative 5 would not result in direct impacts to Palen-Ford WHMA, the indirect effects described above for Alternative 4 would still affect the Palen-Ford WHMA. Consequently, the indirect effects of Alternative 5 on the Chuckwalla

DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for Alternative 4.

***Decommissioning***

*Direct Effects*

Direct effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

*Indirect Effects*

As described for construction, decommissioning effects on Alligator Rock associated with Alternative 5 would be the same as described for Alternative 4.

Indirect decommissioning effects on biological resources in special designation areas would be the same as those described for Alternative 4 even though facility components would not be located within the Palen-Ford WHMA. Consequently, the indirect effects of decommissioning Alternative 5 on the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for Alternative 4.

***Mitigation Measures***

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

***Residual Impacts and Unavoidable Adverse Effects***

Residual effects of Alternative 5 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that the direct effects to the Palen WHMA would be eliminated and impacts to vegetation and habitat would be reduced by 47 acres from 1,208 to 1,161.

### 4.17.8 Alternative 6 – Reduced Footprint Solar Project

***Construction***

*Direct Effects*

Under this alternative, the BLM would approve the Alternative 6 and would amend the CDCA Plan of 1980, as amended. While Alternative 6 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, the boundaries of the project would otherwise be the same as described for Alternative 4. Under Alternative 6, the project site would affect the Palen WHMA. Alternative 6 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Alternative 6 would eliminate any impacts to the separate southwestern portion of the site but would not eliminate impacts to special designation areas. Consequently, the direct impacts resulting from construction of Alternative 6 would be functionally the same as those described for Alternative 4.

#### *Indirect Effects*

While Alternative 6 would eliminate any impacts to the separate southwestern portion of the site, this would not eliminate any impacts to special designation areas. Consequently, the indirect impacts resulting from construction of Alternative 6 would be the same as those described for Alternative 4.

### ***Operation and Maintenance***

#### *Direct Effects*

Operation and maintenance of Alternative 6 would result in the same effects as described for Alternative 4.

#### *Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative 6 would also be the same as described for Alternative 4.

### ***Decommissioning***

Direct effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

#### *Indirect Effects*

Indirect effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

### ***Mitigation Measures***

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

### ***Residual Impacts and Unavoidable Adverse Effects***

Residual effects of Alternative 6 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that impacts to vegetation and habitat would be reduced by 164 acres from 1,208 to 1,044.

## 4.17.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

### ***Construction***

#### *Direct Effects*

Under this alternative, the BLM would approve the Alternative 7 and would amend the CDCA Plan of 1980, as amended. While Alternative 7 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, the boundaries of the project would otherwise be the same as described for Alternative 4 and the views of Alternative 7 from land with special designation would be similar. Under Alternative 7, the project site would affect the Palen WHMA. Alternative 7 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Alternative 7 would eliminate any impacts to the separate southwestern portion of the site but would not eliminate impacts to special designation areas. Consequently, the direct impacts resulting from construction of Alternative 7 would be functionally the same as those described for Alternative 4.

*Indirect Effects*

While Alternative 7 would eliminate any impacts to the separate southwestern portion of the site, this would not eliminate any impacts to special designation areas. Consequently, the indirect impacts resulting from construction of Alternative 7 would be the same as those described for Alternative 4.

***Operation and Maintenance***

*Direct Effects*

Operation and maintenance of Alternative 7 would result in the same effects as described for Alternative 4.

*Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative 7 would also be the same as described for Alternative 4.

***Decommissioning***

Direct effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

*Indirect Effects*

Indirect effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

***Mitigation Measures***

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

***Residual Impacts and Unavoidable Adverse Effects***

Residual effects of Alternative 7 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that impacts to vegetation and habitat would be reduced by 164 acres from 1,208 to 1,044.

### 4.17.10 Alternative A – No Gen-Tie

This No Action Alternative under NEPA defines the scenario that would exist if the proposed gen-tie line were not constructed and no plan amendment was issued. If this No Action Alternative were selected, the impacts of project construction, operation, decommissioning; as well as cumulative impacts of the project's gen-tie line, would not occur. There would be no project-related disturbance of the ground at the tower locations and pull sites, no disturbance of desert vegetation and habitat, and no installation of transmission equipment.

### 4.17.11 Alternative B – Proposed Gen-Tie (Shared Towers)

***Construction***

***Direct Effects***

Under this alternative, the BLM would approve Alternative B. Alternative B would be consistent with the CDCA Plan because the Record of Decision for the adjacent Desert Sunlight Project allowed a transmission line above 161 kV in the proposed Alternative B ROW. The proposed gen-tie route under Alternative B would be 3.3 miles east of Joshua Tree National Park, 5.0 miles west and 4.0 miles south of the Desert Lily Preserve ACEC, 0.75 miles north of the Chuckwalla Mountains Wilderness Area, 0.33 miles northeast of the Alligator Rock ACEC, and would parallel the eastern border of the Chuckwalla DWMA for 5.0 miles. While construction of the gen-tie would occur concurrently with construction of the gen-tie lines for the Desert Sunlight Solar Farm project on shared towers, construction of these transmission lines would result in visual effects to visitors. Fugitive dust, traffic and lighting from construction would create temporary visual distractions for users of these areas. In particular, noise and nighttime lighting could affect the wilderness experience within these areas, making human presence more noticeable. To address those impacts disturbed soils would have to be controlled properly as required in Mitigation Measure VR-1 in order to reduce dust generation. Longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

As construction of Alternative B would not result in any direct off-site impacts to cultural resources, the Alligator Rock ACEC would not be affected by construction of Alternative B.

Effects to vegetation and wildlife in the Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife. Impacts to vegetation and wildlife in Chuckwalla DWMA would be addressed with a series of mitigation measures (MM VEG-1 through MM VEG-10). As described above for Alternative 4, some of these measures would mitigate adverse impacts to vegetation resources by preventing the impacts from occurring and others would minimize adverse impacts on the project site and prevent them in adjacent off-site habitats. MM VEG-6 would require acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site, but would not prevent those impacts from occurring. With off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources. Under the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), development is allowed in one percent of the DWMA. The BLM-administered portion of the DWMA is approximately 465,287 acres in size; therefore, development of Alternative B would represent a negligible percentage of the allowable development in the DWMA.

### *Indirect Effects*

As described in Section 4.6, Cultural Resources, with regard to the North Chuckwalla Petroglyph District, indirect visual and audible impacts along with vandalism associated with increased visitation were identified for the construction of Desert Sunlight Solar Farm. Impacts have not been evaluated for the Alligator Rock ACEC for the DHSP transmission lines. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with transmission facilities will be identified. This determination will be presented in the Final EIS for the DHSP.

The introduction or spread of invasive weeds could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9.

Construction of Alternative B would also result in an increase in vehicle trips on regional roads associated with construction related vehicles, although it is not expected that, in the context of existing non-project-related traffic, the increased traffic would be noticed by the casual observer; therefore, the resulting visual effect would not be substantial.

## ***Operation and Maintenance***

### *Direct Effects*

A limited number of visitors to a portion of Joshua Tree Wilderness, Chuckwalla Mountains Wilderness, and Desert Lily Preserve ACEC would experience adverse effects on their opportunities for solitude. There would be visual effects from the strong form, line, and color contrast of the transmission towers and from sunlight glint and glare reflecting from these structures. While operation and maintenance would not cause any direct effect on the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness, visitors traversing the southwest areas of the Coxcomb Mountains and northern Chuckwalla Mountains would experience permanent direct effects. These effects vary by viewing location, and are discussed in detail in Section 4.19, Visual Resources.

Alternative B O&M would not affect plants or wildlife on site after those plants or habitat is removed or damaged during initial construction. However, vegetation management for facility maintenance could cause accidental off-site impacts, due to herbicide drift or off-site hydrology impacts. Long-term impacts to habitat can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project. Effects to vegetation and wildlife special designation areas, including impacts in the Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

As O&M of Alternative B would not result in off-site impacts to cultural resources, the Alligator Rock ACEC would not be directly affected by Alternative B.

*Indirect Effects*

Indirect visual and audible impacts to the North Chuckwalla Petroglyph District along with vandalism associated with increased visitation were identified for operation of Desert Sunlight Solar Farm. These impacts have not been evaluated for the Alligator Rock ACEC for the DHSP transmission lines. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with the DHSP transmission facilities will be identified. This determination will be presented in the Final EIS for the DHSP.

As described in Section 4.3, Biological Resources - Vegetation, the introduction or spread of invasive weeds could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9.

***Decommissioning***

*Direct Effects*

Decommissioning of Alternative B would cause temporary, indirect disturbance to a limited number of users of the Joshua Tree Wilderness Area and Desert Lily Preserve ACEC similar to those described for construction of the project. Facilities removal during decommissioning would be expected to take place within the approved project footprint, and would not be expected to remove or degrade vegetation, special-status plants, or state-jurisdictional streambeds beyond the project boundaries, except through the effects of dust or similar direct off-site impacts. These impacts can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6, which would apply during decommissioning as they would during construction. If the ultimate re-use of the proposed project site is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to habitat.

Longer-term complete removal of the transmission structures would leave a very prominent visual effect throughout the entire ROW due to the strong color and line contrast created between disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. However, Mitigation Measure VR-2 requires the Applicant to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

*Indirect Effects*

With regard to the North Chuckwalla Petroglyph District, indirect visual and audible impacts along with vandalism associated with increased visitation were identified for decommissioning of Desert Sunlight Solar Farm. These impacts have not been evaluated for the Alligator Rock ACEC for the DHSP transmission lines. Native American consultations are still in progress and will determine whether impacts to the North Chuckwalla Petroglyph District associated with the

DHSP transmission facilities will be identified. This determination will be presented in the Final EIS for the DHSP. After Alternative B has been decommissioned, however, any permanent visual effects described for operation and maintenance of the project would be removed and the site would return to its natural undeveloped state.

Indirect decommissioning effects on biological resources in special designation areas would be the same as described for Alternative B construction. Consequently, the indirect effects of decommissioning Alternative B on the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for construction of Alternative B.

### *Mitigation Measures*

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

### *Residual Impacts and Unavoidable Adverse Effects*

While compensating for impacts to vegetation resources, MM VEG-6 would not prevent those habitat impacts from occurring in Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily ACEC, and Joshua Tree Wilderness Area. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources (including habitat and streambed values). Residual adverse impacts (i.e., impacts remaining after application of mitigation) to vegetation resources would be (1) the net loss of vegetation and habitat on the project site; (2) the direct effects of dust, and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the facility; (3) the net loss of special-status plant occurrences on the project site; and (4) the net loss of state-jurisdictional streambeds and associated habitat on the site and, potentially, off-site, if groundwater pumping causes off-site impacts.

At this time, it is unknown if impacts on cultural resources in Alligator Rock ACEC as a result of Alternative B would occur or would be satisfactorily mitigated because Native American consultations are still in progress, as are NRHP-eligibility evaluations, treatment protocols, and CRHR-eligibility recommendation concurrence. Consultations may raise issues that cannot be resolved through mitigation measures. Prescribed treatments may resolve adverse effects under Section 106. Given the scale and impact to several of the resources identified, impacts under NEPA and CEQA may remain despite implementation of Applicant Measures and mitigation measures.

Given the scale of the transmission structures and the availability of considerable visual access to the Alternative B area, even with effective implementation of Mitigation Measures VR-1 through VR-6, the residual effects associated with landscape scarring, introduced visual contrast from installation of facilities, and introduction of industrial character and structural visual contrast would still result in substantial adverse visual effects. Although the levels of change caused by Alternative B would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These would result in an unavoidable, long-term adverse effect to visual resources.

### 4.17.12 Alternative C – Separate Transmission Towers within Same ROW

***Construction***

***Direct Effects***

Under this alternative, the BLM would approve Alternative C and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The route of the proposed gen-tie line under Alternative C would be identical to that described above for Alternative B, but would include a set of transmission towers paralleling the approved Desert Sunlight gen-tie line. As this alternative would require a second set of transmission towers in addition to those towers approved for Desert Sunlight, there would be twice as much construction activity in the transmission corridor. Construction would result in identical impacts to those described for Alternative B, although with greater intensity.

***Indirect Effects***

Indirect construction effects would be identical to those described for Alternative B, although with greater intensity.

***Operation and Maintenance***

***Direct Effects***

Operation and maintenance of Alternative C would result in the same types of effects as described for Alternative B, although with a greater intensity.

***Indirect Effects***

Indirect effects resulting from operation and maintenance of Alternative C would also be the same types as described for Alternative B, although with a greater intensity.

***Decommissioning***

***Direct Effects***

Direct effects associated with decommissioning activities for Alternative C would be the same types as those described for Alternative B.

***Indirect Effects***

Indirect effects associated with decommissioning activities for Alternative C would be the same types as those described for Alternative B.

***Mitigation Measures***

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

***Residual Impacts and Unavoidable Adverse Effects***

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

### 4.17.13 Alternative D – Cross-Valley Alignment

#### Construction

#### *Direct Effects*

Under this alternative, the BLM would approve Alternative D and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The proposed gen-tie route under Alternative D would avoid traversing Chuckwalla DWMA lands near the proposed solar site, although it would run adjacent to the eastern border of the DWMA for 500 feet before turning southeast. At the southern end of Alternative D, the gen-tie would follow the western border of the Palen-Ford WHMA for 2.2 miles before it would cross Interstate 10 (I-10) and traverse the Chuckwalla DWMA for 0.75 miles before entering the proposed Red Bluff Substation. Alternative D would be 3.6 miles east of Joshua Tree National Park, 2.2 miles southwest of the Desert Lily Preserve ACEC, 0.75 miles north of the Chuckwalla Mountains Wilderness Area, and 0.6 miles northeast of the Alligator Rock ACEC. Construction of Alternative D would result in impacts similar to those described for Alternative B, although with greater intensity.

#### *Indirect Effects*

Indirect effects as a result of construction are similar to those described for Alternative B, although with greater intensity.

#### Operation and Maintenance

#### *Direct Effects*

As described above for construction of Alternative D, operation and maintenance of Alternative D would result in the same types of effects as described for Alternative B, although with a greater intensity.

#### *Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative D would also be the same types as described for Alternative B, although with a greater intensity.

#### Decommissioning

#### *Direct Effects*

Direct effects associated with decommissioning activities for Alternative D would be the same types as those described for Alternative B.

#### *Indirect Effects*

Indirect effects associated with decommissioning activities for Alternative D would be the same types as those described for Alternative B.

### *Mitigation Measures*

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

### *Residual Impacts and Unavoidable Adverse Effects*

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

## 4.17.14 Alternative E – New Cross-Valley Alignment

### *Construction*

#### *Direct Effects*

Under this alternative, the BLM would approve Alternative E and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The proposed gen-tie route under Alternative E would avoid traversing Chuckwalla DWMA lands near the proposed solar site at the northern end of the route. At the southern end of Alternative E, the gen-tie would traverse the Palen-Ford WHMA for 5.75 miles and run along the western border of the WHMA for 1.1 miles before it would cross Interstate 10 (I-10) and traverse the Chuckwalla DWMA for 0.75 miles before entering the proposed Red Bluff Substation. Alternative E would be 2.5 miles southeast of Joshua Tree National Park, 0.4 miles south of the Desert Lily Preserve ACEC, 0.8 miles northeast of the Alligator Rock ACEC, and 0.75 miles north of the Chuckwalla Mountains Wilderness Area. Construction of Alternative E would result in identical impacts to those described for Alternative B, although with greater intensity.

#### *Indirect Effects*

Indirect effects as a result of construction are identical to those described for Alternative B, although with greater intensity due to the proximity between Alternative E and the Desert Lily Preserve ACEC.

### *Operation and Maintenance*

#### *Direct Effects*

As described above for construction of Alternative E, operation and maintenance of Alternative E would result in the same types of effects as described for Alternative B, although with a greater intensity.

#### *Indirect Effects*

Indirect effects resulting from operation and maintenance of Alternative E would also be the same types as described for Alternative B, although with a greater intensity.

***Decommissioning***

*Direct Effects*

Direct effects associated with decommissioning activities for Alternative E would be the same types as those described for Alternative B.

*Indirect Effects*

Indirect effects associated with decommissioning activities for Alternative E would be the same types as those described for Alternative B.

***Mitigation Measures***

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

***Residual Impacts and Unavoidable Adverse Effects***

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

### 4.17.15 National Park Service

The purpose of this subsection is to summarize the direct, indirect and cumulative effects of the project on lands under the authority of the National Park Service; namely, Joshua Tree National Park (Joshua Tree National Park) and Joshua Tree Wilderness. The effects are summarized below for the topics of viewshed, air quality, noise, wildlife, construction workers, and dark skies. Additional discussion associated with National Park Service lands is located in Sections 3.2 (Air Resources), 3.4 (Biological Resources – Wildlife), 3.12 (Noise and Vibration), 3.14 (Recreation), 3.15 (Social and Economic Setting), 3.19 (Visual Resources), 3.20 (Water Resources), 4.2 (Air Resources), 4.4 (Biological Resources – Wildlife), 4.12 (Noise and Vibration), 3.14 (Recreation), 4.15 (Social and Economic Setting), 4.19 (Visual Resources), and 4.20 (Water Resources).

***Viewshed***

*Direct Effects*

Construction of the DHSP would cause temporary visual effects due to the presence of equipment, materials, and workforce. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Grading activities have the potential to generate dust clouds, which can be visually distracting if not controlled properly as required in Mitigation Measure VR-1. Construction activities would be visible from the Joshua Tree Wilderness in Joshua Tree National Park. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects. However, the vast majority of the area disturbed by construction would eventually be occupied by project facilities, though some areas of disturbed soil surfaces (characterized by high color, line, and texture contrasts) would still remain and would be visible from the various viewing vantage points. Revegetation of areas in this desert region is difficult and generally of limited success. Thus, visual recovery from residual land disturbance would likely occur only over a very long period of time and would require successful restoration as stipulated in Mitigation Measure VR-2. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 is required to reduce effects associated with night lighting.

The operational effects are representative of the visual effects that would be experienced from similar locations, including both lower elevation and elevated viewing opportunities, in the surrounding perimeters of Joshua Tree Wilderness and Joshua Tree National Park. While much of this area of the national park is more remote, less accessible, and less used relative to the more accessible regions of the park to the west and north, the area is still an important destination for its geological, backcountry wilderness, and dark sky values. With increasing distance from the project site, project effects become less discernible. The lower elevation viewpoint at KOP 1 in the Eagle Mountains within the Joshua Tree Wilderness Area illustrates effect of perspective foreshortening, which reduces the apparent size and scale of the project due to a low elevation difference and the narrow angle of view. At the greater viewing distances, the proposed project would result in greater visual effects at the elevated viewpoints (illustrated by KOP 2) as the increased elevation causes the size and shape of the project area to become increasingly apparent, along with its associated form, line, and color visual contrasts.

The view from KOP 1 is to the south from a low ridge at the northeast extent of the Eagle Mountains, at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley backdropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. As shown in Figure 4.17-1B, the DHSP would result in the introduction of barely discernible built structures that, at an approximately eight-mile viewing distance, would appear as a low, narrow, light-colored, horizontal band along the valley floor (for the solar farm), and faintly visible, vertical structural elements (for the transmission line). Neither the solar farm nor the transmission line structures would be perceived as prominent features in the landscape when viewed from the more distant, lower elevation viewpoints within Joshua Tree Wilderness (and Joshua Tree National Park). View impairment of the valley floor or other background landforms and natural features would be minimal.

At this background viewing distance, the fairly indistinct low horizontal form and line of the solar farm and the vertical forms and lines of the transmission poles would result in a low degree of visual contrast relative to the natural features of the existing landscape. The most notable characteristic of the development is the color contrast resulting from the reflection of light off the solar farm structural support elements (from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint) and the lighter color of the graded soils. Overall visual contrast would be low. The DHSP features, while visible at this distance, would appear sufficiently small in scale relative to the panoramic landscape context, such that they would be perceived as subordinate features in the landscape. Similarly, the apparent small scale of the project structures at this viewing distance would seem to block from view a minimal extent of the background landscape (valley floor). Thus, view blockage caused by the DHSP would be low. The resulting overall visual change caused by the DHSP would be low, and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1 and other similar more distant, lower elevation vantage points in Joshua Tree Wilderness and Joshua Tree National Park. Although the resulting visual effect would be adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2, VR-3, and VR-4.

The view from KOP 2 in the Coxcomb Mountains within Joshua Tree Wilderness is to the southwest from an elevated vantage point overlooking the predominantly natural appearing northern portion of Chuckwalla Valley, backdropped by the rugged, horizontal to angular forms of the Chuckwalla Mountains and Wilderness (to the south and southwest) and Eagle Mountains (to the west). As shown in Figure 4.17-1B, the DHSP would result in the introduction of a large-scale complex of built structures and graded surfaces forming a spatially and visually prominent series of geometric patterns on the valley floor, that would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape and background mountains. The color and reflective characteristics of the panel support structures would contribute to the noticeable contrast with the existing earthtone colors (similar to KOP 1, from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint). Less distinct would be the faintly visible sequence of vertical transmission structures traversing the valley floor west and south of the solar farm.

The industrial patterns and color of the solar farm, combined with the graded land surfaces and resulting hard lines of the vegetation demarcations would result in strong line contrast with the naturally irregular landform and vegetative lines of the existing landscape. The resulting gray color and slightly reflective metallic surfaces combined with the extensive light-colored graded soil surfaces would contrast moderately to strongly with the darker grey-greens, tans and reddish hues of the foreground to middleground landscape. The resulting overall visual contrast would be moderate-to-high. The spatially prominent location of the solar farm in the central portion of the panoramic views of the Chuckwalla Valley, along with the large scale of the project, which would span a substantial portion of the valley, contribute to the DHSP's overall co-dominance (equally dominant) relative to the flat valley floor and angular mountains. The large areal coverage of the project effectively blocks from view a substantial portion of the valley floor, resulting in a moderate degree of view blockage.

The overall visual change that would result from the equally weighted contributing factors of project-induced visual contrast, project dominance, and view blockage would be moderate, which would cause a substantial effect on the scenic vista available from this and other elevated vantage points within Joshua Tree Wilderness and substantially degrade the existing visual character or quality of the site and its surrounding landscape. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim VRM Class IV management objective. Even though the resulting visual effect would be substantial and adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be reduced through effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5.

### *Indirect Effects*

Indirect visual effects will be the visible increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer in Joshua Tree National Park. The resulting visual effect would not be substantial.

### *Cumulative Effects*

The 11 local foreseeable cumulative energy projects would exhibit complex industrial characteristics and structural visual contrast (form, line, color, and texture) similar to the DHSP (though there will be some differences depending on the type of project and viewing location). An example is provided for the cumulative effect of the DHSP and the Desert Sunlight Solar Farm project, which is the closest cumulative project and is located immediately adjacent and to the north of the proposed project. Figure 4.17-2A presents the existing view of the northern Chuckwalla Valley from KOP 2 on the western flank of the Coxcomb Mountains. This elevated viewpoint provides an elevated perspective of the valley north of I-10. Figure 4.17-2B presents a simulation of the DHSP, which is located approximately 3.5 miles to the southwest. The proposed solar farm, with the solar panel arrays facing (tilted) to the south, away from the viewer at KOP 2, would appear as a spatially prominent and central series of geometric patterns on the basin floor and would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape. Figure 4.17-2C presents a cumulative simulation of the DHSP with the Desert Sunlight solar project, at a viewing distance of 2.5 to 3.5 miles to the southwest. Again, the view is toward the back of the solar field with the solar panels facing toward the south, away from the KOP 2 viewing location. As shown in the simulation, the cumulative visual effect of the two projects would be substantially greater with a larger portion of the valley being converted from a natural desert valley landscape to that of an industrial energy complex that appears, at this viewing distance, as a spatially prominent series of geometric patterns that do not replicate the form, line, color, or texture of the existing desert landscape.

## Air Quality

### *Direct Effects*

As noted in Section 3.2, Air Resources, the Class I area closest to the project is the Joshua Tree National Park. Visibility is considered an important air quality value to be protected within Joshua Tree National Park. Since the nearest boundary of the Joshua Tree National Park is 1.8 miles from the project site, airborne dust generated at the project site could be visible during construction from within the park, especially because low humidity provides clear vistas and relatively low haze. Construction activities would not require use of any major stationary sources that could permanently affect regional air quality or visibility at the Class I area, and the sources of emissions during construction would occur near the ground level where dust would have a limited ability to notably affect distant vistas.

Precursors to haze would also be intermittently released near ground level by construction equipment exhaust. Because of the diffuse and intermittent nature of construction sources, the emissions would be widely dispersed across the project site, and concentrations near the Joshua Tree National Park would be greatly reduced and much lower than the localized effects near the project site.

Emissions during construction of the project would occur primarily during daytime hours and would be controlled to avoid visible plumes as required by SCAQMD Rule 403. Airborne dust generated by wind erosion would be greatly reduced in concentration over nighttime hours when construction activity ceases for the day. Construction activity would be phased across the solar project site over a 2-year period, limiting the amount of disturbed area that could produce fugitive dust from wind erosion at any one time. In addition, Mitigation Measures MM AIR-1

(Fugitive Dust Control Plan) and MM AIR-2 (Control On-Site Emissions) would be implemented to reduce dust and equipment exhaust emissions to the extent feasible. These emissions control requirements ensure that development of the project would result in only a small and temporary increase in wind erosion potential or visibility reduction compared to natural conditions. Consequently, construction of the project with dust controlled to avoid visible plumes as required by SCAQMD Rule 403 would not produce an adverse effect to vistas or in night sky visibility.

### *Indirect Effects*

There would be no indirect effects associated with the project during construction. The electricity produced by the project would displace electricity generated from other power plants, which would avoid the need for their operation. However, the exact nature and location of any changes in criteria air pollutant emission rates is not known and would not likely occur near the Joshua Tree National Park or Joshua Tree Wilderness Area.

### *Cumulative Effects*

As described above, the nearest federal Class I area, Joshua Tree National Park, is located approximately 1.8 miles away from the project site. It is expected that cumulative PM10 and PM2.5 emissions would result in a temporary unavoidable adverse effects during construction, consequently effects on visibility due to airborne dust would likely be adverse. However, the sources of emissions during construction would occur near the ground level, where dust would have a limited ability to notably affect distant vistas, and emissions would be widely dispersed across the project site. The diffuse and intermittent nature of construction sources ensures that the concentration near the Joshua Tree National Park would be greatly reduced and much lower than the localized effects near the project site. Additionally, all cumulative projects are anticipated to avoid visible plumes as required by SCAQMD Rule 403 and implement additional mitigation measures where needed to control dust emissions. Therefore, the DHSP and other cumulative projects would not result in an adverse cumulative effect on visibility.

## *Noise*

### *Direct Effects*

As indicated in Subsection 4.12.6, noise from construction activity would generally be audible at locations less than a half mile from the proposed project site. Operational activities at the project site would generate minimal noise. During operations, there would be 3 to 8 operations and maintenance workers on the project site, on an as-needed basis. There would be limited amounts of vehicle traffic on the site, but this vehicle activity would be intermittent, and would not be expected to generate off-site adverse noise effects. It is unlikely that noise levels associated with construction or operations of the project would be audible at Joshua Tree National Park, which is located approximately 1.8 miles (9,400 feet) to the northeast of the solar field site. Therefore, project construction and operational activities would not result in adverse noise-related effects on users of Joshua Tree National Park. A detailed discussion of the noise-related effects that would be associated with the project are presented in Section 4.12 (Noise and Vibration).

### *Indirect Effects*

There would be no indirect noise-related effects associated with the project.

### *Cumulative Effects*

Cumulative noise or vibration effects would occur if multiple projects would happen in the same geographic areas at the same time or when sequential projects extend the duration of noise or vibration effects on a given area over a longer period of time. Current ambient noise conditions represent the cumulative effect of noise generation on a local geographic scale. Except for the I-10 vicinity, existing noise levels in the immediate project vicinity are generally low. There are no known existing ground vibration issues in the Project Study Area. Cumulative noise effects may result in combination with the Desert Sunlight Solar Farm project, located immediately adjacent to and north of the solar field site; the Silverado Power Solar Project, located one mile south of the solar field site; as well as the Desert Center II Solar Project and the Chuckwalla Solar I Project, both of which would be traversed by the gen-tie line under Alternatives D and/or E.

The Silverado Power Solar Project is not anticipated to begin until mid-2014 and therefore, construction activities would not occur at the same time as the DHSP. Alternatively, construction of the Desert Sunlight Solar Farm Project began in September 2011 with full commercial operation expected by the first quarter of 2015 (First Solar 2011). This schedule coincides with the proposed DHSP construction schedule. The timing for approval and construction of the Desert Center II Solar and Chuckwalla Solar I Projects are not known, but could potentially overlap with part of the construction period for the DHSP. However, it would be expected that no adverse cumulative noise effects on Joshua Tree National Park would result from construction or operational activities for the following reasons: 1) the geographic extent of stationary construction-related noise issues would be limited to distances of 2,500 feet, or less; 2) the geographic extent of potential ground vibration effect would be limited to a distance of a few hundred feet from the source of the vibrations; and 3) the relatively long distance from Joshua Tree National Park to the project sites.

## *__Wildlife__*

### *Direct Effects*

There would be no direct effects to wildlife within the Joshua Tree National Park and Joshua Tree Wilderness as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

### *Indirect Effects*

The development of the project site would result in a permanent conversion of desert habitat to industrial/commercial uses within the NECO planning area, which includes the Joshua Tree National Park and the Joshua Tree Wilderness area. The loss of intermountain and foraging habitat would have indirect effects to the long-term viability of wildlife that are found in or use the surrounding National Parks and Wilderness areas.

For many species such as bighorn sheep, intermountain movements provide a genetic connection within a larger metapopulation and are the source of colonization of vacant habitat. Intermountain areas of the desert floor that bighorn sheep traverse between mountain ranges are as important to the long-term viability of populations as are the mountain ranges themselves. Actions that impair the ability of bighorn sheep to move between mountain ranges include fencing along highways or other boundaries, canals, and high densities of human habitation. These will limit the potential for natural colonization and gene exchange, both of which are key to metapopulation viability. Proposed exclusion fencing surrounding the DHSP could affect the movement of wildlife between the Eagle Mountains and Coxcomb Mountains and the Joshua Tree National Park/Bighorn Sheep WHMA.

The introduction of nonnative, invasive weeds could also indirectly affect habitat for wildlife in the Joshua Tree National Park and Joshua Tree Wilderness area, including the state and federally listed desert tortoise, if project activities resulted in the establishment and/or spread of weeds through the region. The effects of weeds on wildlife are detailed in Section 4.4 (Biological Resources – Wildlife), and include displacement of native plants that are important to herbivorous species, increased threat of wildfire, and altered habitat structure and ecological function of wetland, riparian, and desert wash communities.

These indirect effects to wildlife would be reduced by implementation of the Habitat Compensation Plan and Integrated Weed Management Plan required in Applicant Measures BIO 1 and BIO-2 and Mitigation Measures VEG-6 and VEG-7.

### *Cumulative Effects*

Land use in the cumulative analysis area has been historically altered by human activities, resulting in conversion of undeveloped land and habitat loss, fragmentation, and degradation. Reasonably foreseeable future projects that could affect biological resources in the cumulative effects area characterize overall development trends in the Chuckwalla Valley as well as in the larger NECO planning area. Ongoing development in the area is dominated by renewable energy development. In addition to large-scale land conversion to industrial uses at a project site, major renewable projects require extensive access roads and new transmission lines to tie into the existing electrical grid system. Other projects in the cumulative study area include non-renewable energy, transmission lines, wind power, and solar power projects as well as commercial and residential developments, reconstruction projects, a pumped storage project, an auto racetrack, a landfill, and a communication project (see Tables 3.16-2 and 3.16-3). In consideration of the existing and future development in the region, the project would contribute to adverse cumulative effects on wildlife movement between the Park and Wilderness areas and foraging habitat potentially used by wildlife within Joshua Tree National Park and Joshua Tree Wilderness Area.

The incremental direct and indirect effects to wildlife movement and foraging habitat would be reduced with the implementation of the Habitat Compensation Plan and Integrated Weed Management Plan required in Applicant Measures BIO-1 and BIO-2 and Mitigation Measures VEG-6 and VEG-7. These measures would ensure that habitat loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. However, even with the implementation of mitigation, cumulative effects to wildlife would be adverse because of the rapid and large-scale development in the region, particularly related to utility scale renewable energy projects.

### ***Dark Skies***

#### *Direct Effects*

Of particular concern is the DHSP's potential effect on the Dark Sky resource that Joshua Tree National Park is known for throughout the National Park System. It is estimated that only approximately 10 percent of the population of the United States is able to see the night sky in its natural, unpolluted state. Joshua Tree National Park is noted for initiating partnerships with surrounding communities in an effort to limit light from spilling over park boundaries. To serve this increasing public interest, Joshua Tree National Park offers a variety of Night Sky programs. In the immediate project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1 in the Eagle Mountains. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to insure that additional night sky light pollution does not occur from implementation of the proposed project. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential.

#### *Indirect Effects*

There would be no indirect dark sky-related effects associated with the project.

#### *Cumulative Effects*

As described above for Dark Skies Direct Impacts, as all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the availability of Dark Sky observation areas, the 11 local foreseeable cumulative energy projects contributes to ambient light pollution in a manner similar to the DHSP (though there will be some differences depending on the type of project). To insure that additional night sky light pollution does not occur from implementation of the DHSP, implementation of Mitigation Measure VR-6 would be essential.

### ***Water***

#### *Direct Effects*

As described in Section 3.20, the proposed DHSP site is located within the Colorado River Hydrologic Unit and overlies the Chuckwalla Valley Groundwater Basin (CVGB), which has a surface recharge area of 940 square miles. Joshua Tree National Park is also within the Colorado River Hydrologic Unit, but overlies the Joshua Tree Groundwater Basin, which has a surface recharge area of 53.8 square miles. As described in Section 4.20, construction water requirements of the proposed DHSP are substantially more than operational water requirements; however, the safe yield estimate for the CVGB presented in Table 3.20-2 (Estimated Budget for the Chuckwalla Valley Groundwater Basin) indicates that sufficient water supply is available within the CVGB to meet the project's water requirements. In addition, the Water Supply Assessment (WSA) presented as Appendix E determines that although overdraft conditions should be anticipated to occur in the CVGB over the lifetime of the proposed DHSP, such conditions would be temporary and would recover. Furthermore, mitigation identified in Section 4.20 would require use of an alternative water source for the project (Mitigation Measure

WAT-2, Alternative Water Source), thereby avoiding potential adverse effects associated with local groundwater and water supply reliability. As described in Section 4.20, water use and drainage pattern alterations on the project site would be largely site-specific, and would be minimized or avoided through the implementation of mitigation measures. Potential drainage pattern alterations or other surface water effects on the proposed DHSP site would not affect Joshua Tree National Park. A detailed discussion of the water-related effects that would be associated with the project are presented in Section 4.20, Water Resources.

*Indirect Effects*

Groundwater pumping associated with construction of the DHSP could potentially decrease outflow from the CVGB to hydrologically connected groundwater basin(s), resulting in decreased water availability in the affected basin(s). Groundwater flow direction is generally from the northwest to the southeast, while the Joshua Tree Groundwater Basin is located to the north. Therefore, if the project were to result in this type of indirect effect, it would not be likely to affect the Joshua Tree Groundwater Basin or the overlying Joshua Tree National Park.

*Cumulative Effects*

An estimated cumulative groundwater budget for the CVGB is presented in Table 4.20-4, and indicates that the CVGB could be affected by overdraft conditions between approximately 2014 and 2025, returning to a positive groundwater balance once water demand associated with cumulative projects is reduced (after 2025). The WSA also includes consideration of the cumulative groundwater budget for the CVGB, and determines that although overdraft conditions could develop in the CVGB during implementation of the DHSP and other reasonably foreseeable projects in the area, such conditions would be temporary, and the DHSP's contribution to such conditions would be minimized through implementation of mitigation measures. Potential effects of the project to surface water resources would be relatively site-specific and would not have the potential to result in cumulative effects on Joshua Tree National Park. The proposed DHSP would not result in cumulative effects that would have the potential to affect surface water or groundwater resources in Joshua Tree National Park.

***Recreation***

*Direct Effects*

There would be no direct effects to recreation within the Joshua Tree National Park and Joshua Tree Wilderness Area as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

*Indirect Effects*

Eliminating recreational use of the DHSP site could result in some minimal increase of recreational use outside the project boundary. In addition, the proposed solar facility would result in a temporary increase in population due to the influx of construction workers, although use of these Joshua Tree National Park or the Joshua Tree Wilderness Area by temporary construction workers is not expected to affect recreational use of these areas by the general public, as construction worker use is expected to be minimal.

Because construction of the project would alter the existing character of the project study area, it may result in a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area, located 1.8 miles from the solar facility boundary at its nearest point. Noise effects would not occur due to the distance between the Joshua Tree Wilderness Area and the project site. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. While the construction of the project is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the duration of construction.

Additionally, while the visual effects of operation and the long term presence of the project would be substantially reduced compared with construction, the effects would be ongoing for 30 or 50 years, permanently diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area.

#### *Cumulative Effects*

The project would alter the existing character of the project study area, and it may result in a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area. Three of the energy projects in Table 4.1-2 are as near or nearer to the Joshua Tree Wilderness Area, including the Desert Sunlight Solar Project, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would result in noise and visual effects on the Joshua Tree Wilderness Area. While the construction of the projects is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the duration of construction, operation, and decommissioning of the cumulative projects.

### *Construction Workforce*

#### *Direct Effects*

There would be no direct effects from project construction workers to Joshua Tree National Park and Joshua Tree Wilderness resources as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

#### *Indirect Effects*

The NPS has potential concerns that project construction workers might choose to camp within Joshua Tree National Park either at NPS-designated campsites or informally and commute daily to work at the proposed project site.

Any effects associated with construction workers for the project would be temporary and indirect. The majority of the project construction workforce would be Riverside County residents. The total project construction workforce is expected to average approximately 130 craft workers over the 27-month proposed project construction period, with a peak on-site craft workforce of approximately 315 craft workers.

Research shows that construction workers would commute as much as two hours each direction from their communities rather than relocate (BLM and CEC 2009) and enXco has indicated that the labor force for the proposed project would be derived from Riverside County to the extent possible. The socioeconomic information and analysis in Sections 3.15 (Social and Economic Setting) and 4.15 (Social and Economic Setting) determine that there are more than sufficient unemployed Riverside County residents to meet the project's construction workers needs. Consequently, it is expected that minimal population in-migration would occur as a result of the project construction.

Similarly, it also is unlikely that the construction workforce would require housing in excess of the existing supply. Based on the data and analysis in Section 3.15 (Social and Economic Setting) and 4.15 (Social and Economic Setting), any in-migration by the construction workforce could be accommodated by the available hotel rooms and housing vacancies in the nearby cities of Blythe and Indio, which have approximately 35 lodging facilities with an average of 55 rooms per facility.

Most of the Joshua Tree National Park campgrounds are located in the northwest area of the park and are too great a distance for project construction workers to commute from on a daily basis. Only the Cottonwood Campground is readily accessible from I-10. The campground has 62 individual sites available on a first-come first-served basis year round. There are also three group sites that can be reserved. There is a 30-day camping limit each year for park visitors (of which at most 14 nights total may occur from October through May). The Cottonwood Campground would likely be 45 minutes to an hour's drive from the project site. The campground has basic camping amenities, including water and a dump station for RVs, but no shower facilities or utility hook-ups are available. Consequently, the campground would likely have limited attraction as overnight accommodations for project workers.

Informal camping by construction workers could be an issue in the eastern Joshua Tree National Park areas that are closer to the project site and less frequented by other park visitors or park rangers. These areas are remote and do not provide any long-term support facilities or amenities. Informal camping by construction workers might still occur, but would likely be infrequent and short in duration, resulting in a minor effect on the NPS camping facilities and natural resources.

### *Cumulative Effects*

Depending on their locations, other solar projects near the Joshua Tree National Park may cause effects similar to those of the proposed project. However, the other solar projects are of equal or greater distance from Joshua Tree National Park and therefore would be expected to have an equal or lesser effect (on a per worker basis) on park resources. As discussed in Section 4.15 (Social and Economic Setting), there will be a sufficient number of employable Riverside County residents to meet the projects' cumulative construction workforce needs. It is therefore expected that minimal population in-migration would occur as a result of the construction of the currently foreseen solar construction projects in Riverside County. Furthermore, there are substantial housing and overnight accommodations available in the region to meet any demand for project workers to temporarily relocate closer to their project site. Consequently, there would be a minor cumulative effect on NPS camping facilities and natural resources from construction workers.

***Mitigation Measures***

The Record of Decision or Right-of-Way Grant stipulations will recognize an Interagency Agreement between the BLM and NPS. This Interagency Agreement will establish roles and responsibilities, and the agencies will work cooperatively with the Applicant to develop an Environmental and Construction Monitoring and Compliance Program (ECMCP). The NPS will significantly contribute to the development of detailed criteria in the lighting, dust control, and noise mitigation and monitoring for the project.

**MM SD-1** **The NPS reviews and comments on pre-construction plans.** The NPS shall be afforded the opportunity to review and comment on the following pre-construction plans required for the project prior to approval of the plans by the BLM: the Vegetation Resources Management Plan, the Fugitive Dust Control Plan, the Integrated Weed Management Plan, Night Lighting Management Plan, and the Construction Traffic Control Plan. Review and comment by the NPS must be within time frames specified by the BLM.

**MM SD-2** **Applicant enters into a funding agreement.** The Applicant shall enter into a funding agreement or other financial mechanism, as may be specified in the Record of Decision or Right-of-Way Grant, to reimburse the NPS for reasonable costs incurred in the monitoring of the following measures (whether applicant-proposed or BLM-required) to address temporary indirect impacts on the Joshua Tree National Park:

- Fugitive dust: MM AIR-1, and MM VR-1, concerning the development and implementation of a dust control plan that includes the use of dust palliatives to ensure compliance with SCAQMD Rule 403; MM AIR-3, requiring control of fugitive dust on unpaved roads on the DHSP site; and AM-GEO-2, as it relates to the suppression of fugitive dust during construction and operation.
- Noise: MM NOI-1, limiting construction activity to daytime hours near occupied residences.
- Nighttime lighting: MM VR-6, requiring the design and installation of a night lighting management plan concerning temporary and permanent exterior lighting.

**MM SD-3** **The Applicant develops a Signage and Guidance Plan.** A Signage and Guidance Plan shall be developed for Joshua Tree National Park by the Applicant and reviewed and approved by both the NPS and the BLM prior to the start of construction of the project. The intent of this plan is to address the potential indirect effects on NPS land as a result of the influx of workers associated with the mobilization, construction, and demobilization of the project. The plan shall include the following elements:

- Design and installation of directional and informational signage that identify areas of Joshua Tree National Park available for day, overnight, and long-term stays; off-limit areas; and pertinent park rules and regulations;
- Design and installation of strategically placed gates, bollards, or the like, inside the boundary of Joshua Tree National Park, where deemed necessary,

for the purpose of vehicular control on NPS parkland located nearest the project boundary;

- Educational instruction for project construction workers on park rules and regulations pertinent to Joshua Tree National Park and Joshua Tree Wilderness Area. This instruction shall be integrated into the Worker Environmental Awareness Program;
- Requirements for the retention and/or removal of any items installed as part of the plan following completion of construction of the project; and,
- Funding mechanism for implementing the plan.

Items installed as part of the plan shall have a nexus to the NPS's need to address the likely impacts associated with above normal numbers of users of Joshua Tree National Park facilities during the mobilization, construction, and demobilization period of the project.

### 4.17.16 Cumulative Effects

*Geographic Scope*

Since the project would impact the Joshua Tree, Chuckwalla Mountains and Palen-McCoy Wilderness Areas, the geographic extent of analysis is the area encompassing the northern boundary of the Joshua Tree Wilderness Area south to the southern boundary of the Chuckwalla Mountains Wilderness Area. The eastern and western boundaries would also be determined by the Wilderness Area boundaries. The Alligator Rock ACEC is included in this geographic extent. To a lesser extent, Palen-McCoy Wilderness, since it would be within the viewshed of the Project Study Area is also considered within this analysis.

**Table 4.17-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Special Designations | Northern boundary of the Joshua Tree Wilderness Area south to the southern boundary of the Chuckwalla Mountains Wilderness Area. Eastern and western boundaries would also be determined by the Wilderness Area boundaries | Impacts to lands under special designation | • Interstate 10<br>• Devers-Palo Verde No. 1 Transmission Line<br>• West-wide Section 368 Energy Corridors<br>• BLM Recreational Opportunities<br>• Blythe Energy Project Transmission Line<br>• Chuckwalla Valley Raceway<br>• Desert Sunlight Solar Farm Project<br>• Silverado Power Solar Project<br>• Devers-Palo Verde No. 2 Transmission Line<br>• Desert Southwest Transmission Line<br>• Sol Orchard<br>• SCE Red Bluff Substation |

## *Cumulative Effects Analysis*

### *Existing Cumulative Conditions*

The Joshua Tree, Chuckwalla, and Palen-McCoy Wilderness Areas are surrounded by largely undeveloped lands. The Alligator Rock ACEC is also largely undeveloped, though it is nearly adjacent to I-10. Devers-Palo Verde No. 1 transmission line has been built through the Alligator Rock ACEC and the Desert Sunlight Solar Farm is under construction north of the proposed project site.

### *Past, Present and Reasonably Foreseeable Future Projects*

Devers-Palo Verde No. 1 and Blythe Energy Project Transmission Line are existing projects that currently passes through the Alligator Rock ACEC and the Desert Sunlight Solar Facility is currently under construction immediately adjacent to the north of the proposed project site. The Desert Sunlight gen-tie would be constructed along Kaiser Road. The Chuckwalla Valley Raceway is located three miles north of the Alligator Rock ACEC. DPV2 transmission line is a proposed future project that would also pass through the Alligator Rock ACEC. These projects may contribute to the impacts of Alternatives 4, through 7 and C through E to result in cumulative impacts to the ACEC, the Chuckwalla Desert DWMA, and the Palen-Ford WHMA. The temporary impacts from the proposed project or Alternatives 5, 5, and C through E in conjunction with the future Devers-Palo Verde No. 2 and Desert Sunlight projects could cause cumulative impacts to the viewshed of the Chuckwalla Wilderness Areas and the Alligator Rock ACEC by adding a second transmission line adjacent to the existing line. No other known projects have been proposed within the Alligator Rock ACEC, Joshua Tree, Chuckwalla Mountains or Palen-McCoy Wilderness Areas.

Depending on their locations, other solar projects, such as the Silverado Power Solar Project, near the Joshua Tree Wilderness Area and Chuckwalla Mountains Wilderness Area may cause similar impacts compared to the proposed project.

Past and present projects have already caused adverse impacts to the resources located within the Alligator Rock ACEC. While the impacts from the DHSP are expected to be individually minor, these actions add to an existing cumulatively adverse impact on cultural resources. These impacts may result in a substantially adverse change in the significance of a resource, potentially jeopardizing its eligibility for listing on the NRHP and CRHR.

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, and 3) or Alternative A (No Gen-Tie), these alternatives would not contribute to cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.17.15 CEQA Considerations

Appendix G of the State CEQA Guidelines does not provide significance criteria for special designations, except those stated for agriculture and forestry resources (addressed under Section 4.11, Lands and Realty). No significance determination has been made.

# Section 4.18

## Transportation and Public Access

## 4.18 TRANSPORTATION AND PUBLIC ACCESS

This section describes effects on transportation and public access that would be caused by implementation of the proposed project. The following discussion identifies and analyzes environmental impacts, and describes measures to reduce or avoid adverse impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to transportation and circulation are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the project. An analysis of cumulative effects from other past, present and reasonably foreseeable projects related to transportation and circulation is also included in Section 4.18.15.

### 4.18.1 Methodology for Analysis

Baseline conditions for the effects analysis presented in this section were established in Section 3.18. To evaluate effects related to transportation and public access within the project study area, a quantitative traffic study was completed for the project by Hernandez, Kroone and Associates (HKA 2011), using methods based on the Highway Capacity Manual. The traffic study follows the outline in the Riverside County Transportation Department “Traffic Impact Analysis Preparation Guide”, dated April 2008. The traffic study is included in this document as Appendix H.

Effects to the transportation network were identified based on the predicted interaction among construction, operation, and decommissioning of the project or an alternative and the baseline environmental setting described in Section 3.18. Generally there are two times when the existing traffic volume is highest: between 6:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM on a normal week day. The impacts of the traffic are studied for the peak one hour period during each of those two periods. The analysis presented below estimates the project trips of concern for both the AM and PM Peak Periods.

Traffic operations were quantified through the determination of Level of Service (LOS), which is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. Levels of Service were calculated for the study intersections using methods documented in the Transportation Research Board (TRB) Publication *Highway Capacity Manual, Fourth Edition, 2000* (HCM 2000). A LOS of A means that the intersection has little delay. A LOS of F means the intersection has delays of over a minute for signalized intersections.

In the County of Riverside, Circulation Element Policy C2.1 states the County should maintain a countywide target level of service (LOS) of LOS “C” along all County maintained roads and conventional state highways. As such, if the LOS decreases to below an LOS of C with the addition of the traffic generated by the proposed project (project traffic), it is considered to have an impact and mitigation may be required. Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

Because no traffic would be generated as a result of any of the two No Action Alternatives (Alternative 1 and Alternative 2 as described in Section 2), the quantitative traffic analysis described in this section is only relevant to the Action Alternatives (Alternatives 4 through 6 as described in Section 2).

Transportation and public access effects were considered for the project's potential to: exceed Level of Service (LOS) standards along roadway segments or intersections; conflict with air travel, restrict or disrupt rail service, restrict or disrupt access to the proposed project site or nearby land uses (including movement of emergency vehicles), restrict or disrupt public transportation, result in substantial damage to area roadways, or conflict with applicable plans.

The County of Riverside General Plan and the County of Riverside Congestion Management Plan were reviewed to evaluate the potential for project traffic to conflict with applicable plans, ordinances, policies, and congestion management programs presented therein.

### 4.18.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In addition, the Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts some of these applicant measures (indicated by the prefix AM) by incorporating them into project-specific mitigation measures (indicated by the prefix MM) proposed in Section 4.18.6, as appropriate, to minimize adverse effects to the extent feasible. Mitigation measures encompass the substance and intent of the AMs, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures and the following AMs, the mitigation measures take precedence.

**AM TR-1** **Construction Traffic Control Plan.** The project Applicant will prepare a Construction Traffic Control Plan in conjunction with Riverside County or Caltrans in accordance with Caltrans Manual on Uniform Traffic Control Devices and the California Joint Utility Traffic Control Manual (2010).

**AM TR-2** **Document road conditions.** The project Applicant will document road conditions at the beginning and end of project construction and decommissioning and contribute fair share cost for pavement maintenance and other needed repairs.

**AM TR-3** **Share project information with airport owners.** The project Applicant will share project information with the airport owners if a transmission line alternative that runs near the former Desert Center Airport's runway is selected to assure that no special precautions are needed.

**AM TR-4** **Coordinate with DoD.** The BLM will coordinate with the Department of Defense R 2508 Complex Sustainability Office, Region IX, based in San Diego, California, and with local regional military installations regarding low-level flight operations relative to the project to assure that no special precautions are needed.

### 4.18.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

### 4.18.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.18.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.18.6 Alternative 4 – Proposed Solar Project

The projected future traffic volume in the area provides context against which to measure the impact of project-generated traffic. As discussed in Appendix H several growth measurements were analyzed to determine which one provided the best method to estimate future traffic in the project area and a three percent annual growth rate was determined to be appropriate for use in the traffic analysis.

Project trips represent the volume of traffic that would be added to the road system by implementation of the proposed project. Project trips include employees commuting to and from the proposed project site, construction equipment trips, and deliveries of materials to the proposed project site.

The number of project trips would be the same or similar regardless of which action alternative is chosen. Therefore, the project trips were not estimated separately for each alternative and the traffic analysis was performed using a single dataset.

The only project trips relevant to the quantitative traffic analysis are those that occur during the AM and PM peak traffic hours. Because traffic volume would likely be greatest during these hours, analyzing these periods provides a conservative assessment of overall traffic impacts. The AM peak traffic hour occurs during the period from 6:00 AM to 9:00 AM and the PM peak traffic hour occurs during the period from 4:00 PM to 6:00 PM (HKA 2011). Traffic impacts are studied for the peak one hour period during each of those two periods.

#### *Construction*

Construction would occur over a period of 24 months. The project is expected to require a maximum on-site workforce of 250 individuals at any one time, with an anticipated average workforce of 100 individuals. Because the typical work day would consist of one shift between the hours of 7:00 AM and 7:00 PM, not all of these trips would be expected to occur during the Peak Periods identified above. Table 4.18-1 presents the number of daily and peak hour worker commute trips and truck trips expected to be generated during project construction.

**Table 4.18-1. Construction Trip Generation**

| Component | Daily Trips (PCEs*) | AM Peak Period | | PM Peak Period | |
|---|---|---|---|---|---|
| | | IN | OUT | IN | OUT |
| Solar Project | 426 | 125 | — | — | 125 |
| Guards | 20 | — | 5 | — | — |
| **Personnel Subtotal** | **446** | **125** | **5** | **0** | **125** |
| Deliveries and Equipment | Varies | 18 | 15 | — | — |
| **Total** | **—** | **143** | **20** | **—** | **125** |

* Project truck trips were converted to passenger car equivalents (PCEs) by using a factor of 3 (i.e. the total number of trucks expected to access the site during the AM peak hour is 6 in and 5 out).
Source: Appendix H (HKA 2011)

### *Direct Effects*

*Measures of Effectiveness for Performance of Circulation System (LOS)*

Construction of the proposed project would generate additional traffic on regional and local roadways. Construction worker commute trips and equipment and materials deliveries would increase existing traffic volumes in the project area.

As described in Section 4.18.1 Riverside County Circulation Element Policy C2.1 states that the County must maintain a target LOS “C” along County maintained roads and conventional state highways. As such, impacts to roadways would occur when the addition of project traffic causes roadway operations to degrade from an acceptable level (LOS C or better) to an unacceptable level (LOS D or worse). Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

As shown below in Table 4.18-2, the addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second and the LOS of these intersections would remain within the County target of LOS “C” or better. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic.

**Table 4.18-2. LOS Summary for Project Construction**

| Intersection | Control | Without Project | | With Project | |
|---|---|---|---|---|---|
| | | Delay (sec) | LOS | Delay (sec) | LOS |
| **AM Peak Period** | | | | | |
| SR-177 / I-10 EB | EB off ramp stops | 9.1 | A | 10.0 | B |
| SR-177 / I-10 WB | WB off ramp stops | 9.1 | A | 9.9 | A |
| SR-177 / Kaiser Road | SB Kaiser Road stops | 8.5 | A | 8.6 | A |
| **PM Peak Period** | | | | | |

**Table 4.18-2. LOS Summary for Project Construction**

| | | Without Project | | With Project | |
|---|---|---|---|---|---|
| Intersection | Control | Delay (sec) | LOS | Delay (sec) | LOS |
| SR-177 / I-10 EB | EB off ramp stops | 9.3 | A | 9.8 | A |
| SR-177 / I-10 WB | WB off ramp stops | 9.7 | A | 10.1 | B |
| SR-177 / Kaiser Road | SB Kaiser Road stops | 8.8 | A | 9.6 | A |

EB – eastbound
WB – westbound
Source: Appendix H (HKA 2011)

As discussed in Section 4.20, MM WAT-2 would require the applicant to transport water needed for construction of Alternative 4 by truck. It is estimated that this would result in 50 truck trips per day in addition to the trucks presented in 4.18-1. The potential for these water truck trips to result in adverse effects to the LOS of existing roadways and intersections would be reduced through implementation of mitigation measure TRAN-1 presented under the "Mitigation Measures" subheading and summarized below.

- MM TRAN-1 (Alternative Water Source) would reduce impacts to LOS by requiring water trucks to arrive and depart the site outside of the AM and PM peak hours.

### *Air Traffic Obstruction and Safety*

According to Federal Aviation Regulations, Part 77, Section 77.23 (a)(2), objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles) of an airport could be considered an obstruction to aviation activities.

The proposed project would overlap a low-level military flight path. The Applicant would coordinate with the Department of Defense R-2508 Complex Sustainability Office, Region IX, based in San Diego, California, as well as with local regional military installations to ensure that no impacts or conflicts occur during construction (AM-TRANS-4). The proposed project would be sufficiently distant (5 miles) from the former Desert Center Airport that no effects would occur. Construction of the proposed project would not substantially increase traffic at regional airports as most trips to the site would take place in cars or trucks. The proposed project would be located within 4 miles of the Eagle Mountain landing strip. The landing strip is located at an elevation that is at least 200 feet higher than the proposed project site and the tallest structures at the proposed project site would be the 34.5-kV collector poles, estimated at 52 feet above finished grade. Construction of Alternative 4 would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles).

### *Roadway Damage and Hazards*

Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The contribution of the proposed project to road deterioration would be negligible on I-10 because project-generated traffic would be a small portion of total traffic. However, effects on local roads could be more pronounced. Effects would be reduced with implementation of MM TRAN-2, which would require the Applicant to restore roads to pre-construction conditions.

Most of the land surrounding the proposed project site is unimproved with the exception of Kaiser Road. The entrance to the proposed project site would be graded to dimensions to accommodate construction trucks; therefore, no adverse effects are expected to occur as a result of a street design feature. An emergency gate would be located in the southeast corner, with access to Beekley Road (north of Rice Road, west of Carr Road). Because this road would only be used during emergencies, no adverse effects are expected to occur due to use of this road.

*Emergency Access*

With the addition of project construction traffic, all intersections and roadways segments analyzed would operate at LOS A. At LOS A, traffic can move freely. Therefore, construction traffic would not result in adverse effects to access to the proposed project site (including movement of emergency vehicles) or nearby land uses. An emergency gate would be located in the southeast corner, with access to Beekley Road (north of Rice Road, west of Carr Road).

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

The Regional Transportation Plan (RTP) is a multi-modal, long-range planning document prepared by the Southern California Association of Governments (SCAG), in coordination with federal, state, and other regional, subregional, and local agencies in southern California. The RTP includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight, and finances. The Riverside County Congestion Management Program (CMP) was established to more directly link land use, transportation, and air quality and to prompt reasonable growth management programs that would more effectively utilize new and existing transportation funds, alleviate traffic congestion and related impacts, and improve air quality. The proposed project involves construction of a renewable energy generation facility that would not involve construction of new transportation facilities or substantial alteration of existing transportation facilities (other than installation of an access driveway on Kaiser Road). There are no pedestrian or public transit facilities in the vicinity of the proposed project. As discussed above, project construction traffic would not reduce the LOS of area facilities below LOS C. Therefore the project would not conflict with the applicable RTA or CMP.

***Indirect Effects***

There are no indirect effects related to transportation and public access for construction.

***Operation and Maintenance***

***Operational Trips***

Operation of the project would require a staff of up to 8 permanent employees. No replacement/rotations of plant personnel are projected during this period. If the need for such a rotation arises, necessary arrangements would be coordinated with the owner on a case-by-case basis. The operational trip generation numbers conservatively assume up to 10 O&M staff per shift and up to two shifts per day. Operation of the project would also require up to 5 security personnel (conservatively estimated) and 5 deliveries per day. Given an O&M staff of 8 per shift, it is anticipated 1 round trip by each will be made to the proposed project site. Table 4.18-3 shows an anticipated schedule of the trips to and from the site each day during project operation.

**Table 4.18-3. Operational Trip Generation**

| Component | Daily Round Trips | AM Peak Period |  | PM Peak Period |  |
|---|---|---|---|---|---|
|  |  | IN | OUT | IN | OUT |
| O&M Staff | 20 | — | 10 | 10 | — |
| Guards | 10 | — | 5 | 5 | — |
| Deliveries and Equipment | 5 | 1 | 1 | 1 | 1 |
| **Total** | **35** | **1** | **16** | **16** | **1** |

Source: Appendix H (HKA 2011)

### *Direct Effects*

*Measures of Effectiveness for Performance of Circulation System (LOS)*

Traffic related to operation of the project would generate a total of 17 trips during each the AM and PM peak hours. An increase of 17 trips during the peak hour would not impact area intersections or roadways. The existing intersections and roadways have sufficient capacity to absorb these 17 trips without a decrease in LOS or operation (as verified by the analysis of construction effects which shows the existing system is able to absorb over 125 AM Peak hour trips and PM peak hour trips). There is no concern for impacts to the study roads or intersection and no need for mitigation due to the operation and maintenance project trips for the project.

*Air Traffic Obstruction and Safety*

Because operation and maintenance of the project would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher) within three nautical miles (3.45 linear miles) of an airport, direct effects of operating and maintaining Alternative 4 on air traffic would be identical to as those described for construction.

*Roadway Damage and Hazards*

Because operation and maintenance of Alternative 4 would result in substantially fewer vehicle trips than construction, direct effects of operating and maintaining Alternative 4 on roadway damage would be substantially less than those described for construction.

*Emergency Access*

Because operation and maintenance of Alternative 4 would result in the addition of substantially fewer vehicle trips to area roadways, direct effects of operating and maintaining Alternative 4 on emergency access would be substantially less than those described for construction.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

As described for construction of Alternative 4, there are no direct effects related to conflicts with applicable plans and policies that would occur as a result of operating and maintaining Alternative 4.

### *Indirect Effects*

There are no indirect effects related to transportation and public access for construction.

### ***Decommissioning***

The proposed methods of decommissioning of the solar facility are summarized in Chapter 2. The expected operational lifetime of the project is 30 years; however, the actual life of the project could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. Decommissioning of the project would occur in compliance with the decommissioning plan. Decommissioning of the project may range from temporary "mothballing" to complete removal of equipment and restoration of the land to BLM approved specifications (enXco 2011). For the purposes of this analysis of effects on transportation and public access, it is assumed that decommissioning would require a similar number of vehicle trips as construction of Alternative 4.

### *Direct Effects*

#### *Measures of Effectiveness for Performance of Circulation System (LOS)*

The number of vehicle trips associated with decommissioning would be similar to those required for construction. As shown below in Table 4.18-2, the addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not reduce the existing LOS to an unacceptable level. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore direct effects of Alternative 4 on the performance of the circulation system would be similar to those described for construction.

While truck traffic associated with decommissioning would be expected to be similar to that described for construction, it is difficult to determine the impacts of project decommissioning due to uncertainties of traffic conditions in the future. If the existing traffic is worse at the time of decommissioning than the current existing conditions, mitigation measures similar to MM TRAN-1 would be implemented during decommissioning, as part of the decommission plan to be developed and approved by the BLM.

#### *Air Traffic Obstruction and Safety*

Decommissioning of Alternative 4 would result in removal of all onsite structures. Therefore, direct effects of this alternative would have no effect on air traffic.

#### *Roadway Damage and Hazards*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction, direct effects of decommissioning of Alternative 4 on roadway damage and hazards would be identical to those described for construction of Alternative 4.

#### *Emergency Access*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative 4, direct effects of decommissioning of Alternative 4 on emergency access would be identical to those described for construction of Alternative 4.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative 4, as described for construction of Alternative 4, there would be no direct effects related to conflicts with applicable plans and policies that would occur as a result of decommissioning of Alternative 4.

***Indirect Effects***

There are no indirect effects related to transportation and public access for construction.

***Mitigation Measures***

The following mitigation measure is required to reduce effects related to transportation and public access.

**MM TRAN-1 Limit Water Truck Deliveries.** All water truck deliveries are prohibited from arriving or departing the project during the AM Peak Period (6:00 AM to 9:00 AM) and PM Peak Period (4:00 PM to 6:00 PM).

**MM TRAN-2 Restore Local Roads.** The project Applicant shall document road conditions of Kaiser Road and any other local construction access roads prior to and at the end of project construction and decommissioning, and restore the roads to pre-construction (and pre-decommissioning) conditions in consultation with Riverside County and BLM. Should the Applicant wish to engage in a cost sharing arrangement with other local project developers for restoring local roads, the burden of proof shall rest with the Applicant to demonstrate that the roads will be restored to pre-construction (and pre-decommissioning) conditions, and any cost sharing arrangement requires Riverside County and BLM approval.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 4.

### 4.18.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed within the same project boundaries as Alternative 5, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA), as shown on Figure 2-9, in Appendix A.

***Construction***

Although Alternative 5 covers a slightly smaller area than Alternative 4, the estimated number of construction-related truck trips would be the same for Alternative 5 as for Alternative 4. The direct and indirect effects of Alternative 5's construction will be the same as those described for Alternative 4.

***Operation and Maintenance***

Operation and maintenance of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Decommissioning***

Decommissioning of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Mitigation Measures***

The same mitigation measures would apply to Alternative 5 as apply to Alternative 4.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 5.

### 4.18.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would be constructed within the same project boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, as shown on Figure 2-10, in Appendix A.

***Construction***

Although Alternative 6 covers a slightly smaller area than Alternative 4, the estimated number of construction-related truck trips would be the nearly identical for Alternative 6 as for Alternative 4. The direct and indirect effects of Alternative 6's construction will be the same as those described for Alternative 4.

***Operation and Maintenance***

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Decommissioning***

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

***Mitigation Measures***

The same mitigation measures would apply to Alternative 6 as apply to Alternative 4.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 6.

### 4.18.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

#### *Construction*

Although Alternative 7 covers a slightly smaller area than Alternative 4 and requires single-axis tracking panels that would have a total height of 15 feet, the estimated number of construction-related truck trips would be the nearly identical for Alternative 7 as for Alternative 4. The direct and indirect effects of Alternative 7 construction will be the same as those described for Alternative 4.

#### *Operation and Maintenance*

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

#### *Decommissioning*

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

#### *Mitigation Measures*

The same mitigation measures would apply to Alternative 7 as apply to Alternative 4.

#### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 7.

### 4.18.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused to transportation and public access related to the gen-tie would not occur.

### 4.18.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project; however, the baseline for environmental effects is the existing condition of the site in September 2011. At this time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B must include all construction effects of this shared infrastructure.

***Construction***

Construction of Alternative B within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.8 (Alternative B).

Over a 12-month construction period, the gen-tie workforce will average 30 employees and no more than 65 employees at any one point. A total of approximately 240 material deliveries are expected during the construction period for the gen-tie line.

***Direct Effects***

*Measures of Effectiveness for Performance of Circulation System (LOS)*

Construction of Alternative B would generate additional traffic on regional and local roadways. Construction worker commute trips and equipment and materials deliveries would increase existing traffic volumes in the project area.

As described in Section 4.18.1 Riverside County Circulation Element Policy C2.1 states that the County must maintain a target LOS “C” along County maintained roads and conventional state highways. As such, impacts to roadways would occur when the addition of project traffic causes roadway operations to degrade from an acceptable level (LOS C or better) to an unacceptable level (LOS D or worse). Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

The addition of gen-tie line construction related traffic to the regional roadway network is expected to increase the delay at all intersections; however, even if all construction workers commuted during peak hours, this increase of an average of 30 trips would be less than the increase of Alternative 4 which resulted in a delay of less than one second. The existing LOS of these intersections is not expected to change and the construction effects of Alternative B would be a temporary effect. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of Alternative B construction traffic.

*Air Traffic Obstruction and Safety*

Alternative B would overlap a low-level military flight path. The Applicant would coordinate with the Department of Defense R-2508 Complex Sustainability Office, Region IX, based in San Diego, California, as well as with local regional military installations to ensure that no effects or conflicts occur during construction (AM-TRANS-4). Alternative B would be 2.25 miles from the former Desert Center Airport and within 4 miles of the Eagle Mountain landing strip. Because the landing strip is located at an elevation that is at least 200 feet higher than Alternative B and the tallest structures along the gen-tie line would be the 135-foot transmission poles, construction of Alternative B would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles). Construction of the Alternative B would not substantially increase traffic at regional airports as most trips to the site would take place in cars or trucks.

*Roadway Damage and Hazards*

Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The contribution of Alternative B to road deterioration would be negligible on I-10 because construction-generated traffic would be a small portion of total traffic. However, effects on local roads could be more pronounced. Effects would be reduced with implementation of MM TRAN-2, which requires restoration of roads.

*Emergency Access*

With the addition of project construction traffic, all intersections and roadways segments analyzed would operate at LOS A. At LOS A, traffic can move freely. Therefore, construction traffic would not result in adverse effects to access to the proposed project site (including movement of emergency vehicles) or nearby land uses.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

The Regional Transportation Plan is described in Section 4.18.6 for Alternative 4. Alternative B involves construction of a gen-tie line that would not involve construction of new transportation facilities or substantial alteration of existing transportation facilities (other than installation of access spur roads to the transmission towers along Kaiser Road). There are no pedestrian or public transit facilities in the vicinity of Alternative B. As discussed above, project construction traffic would not reduce the LOS of area facilities below LOS E. Therefore Alternative B would not conflict with the applicable RTA or CMP.

***Indirect Effects***

There are no indirect effects related to transportation and public access for construction.

***Operation and Maintenance***

The DHSP operations and maintenance personnel would perform periodic maintenance of Alternative B, and no additional personnel would be required.  Therefore no increase of trips would occur above those expected for Alternative B There is no concern for effects to the study roads or intersection, roadway damage and hazards, or emergency access and no need for mitigation due to the operation and maintenance project trips for the project.

***Direct Effects***

*Air Traffic Obstruction and Safety*

Because operation and maintenance of Alternative B would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher) within three nautical miles (3.45 linear miles) of an airport, direct effects of operating and maintaining Alternative B on air traffic would be identical to as those described for construction.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

As described for construction of Alternative B, there are no direct effects related to conflicts with applicable plans and policies that would occur as a result of operating and maintaining Alternative B.

***Indirect Effects***

There are no indirect effects related to transportation and public access for construction.

***Decommissioning***

For the purposes of this analysis of effects on transportation and public access, it is assumed that decommissioning would require a similar number of vehicle trips as construction of Alternative B.

***Direct Effects***

*Measures of Effectiveness for Performance of Circulation System (LOS)*

The number of vehicle trips associated with decommissioning would be similar to those required for construction. The addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not change the existing LOS of these intersections. As such drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore direct effects of Alternative B on the performance of the circulation system would be similar to those described for construction.

*Air Traffic Obstruction and Safety*

Decommissioning of Alternative B would result in removal of all transmission structures. Therefore, direct effects of this alternative would have no effect on air traffic.

*Roadway Damage and Hazards*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction, direct effects of decommissioning of Alternative B on roadway damage and hazards would be identical to those described for construction of Alternative B.

*Emergency Access*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative B, direct effects of decommissioning of Alternative B on emergency access would be identical to those described for construction of Alternative B.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative B, as described for construction of

Alternative B, there would be no direct effects related to conflicts with applicable plans and policies that would occur as a result of decommissioning of Alternative B.

### *Indirect Effects*

There are no indirect effects related to transportation and public access for construction.

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative B would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative B.

## 4.18.12 Alternative C –Separate Transmission Towers within Same ROW

Alternative C would parallel the approved DSSF gen-tie line, and would be located on separate towers within the same, or a slightly larger, ROW, see Figure 2-14, Appendix A. Construction of Alternative C within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.9 (Alternative C).

### *Construction*

Alternative C would occur adjacent to Alternative B. The estimated number of construction-related truck trips would be the same for Alternative C as for Alternative B. The direct and indirect effects of Alternative C's construction will be the same as those described for Alternative B.

### *Operation and Maintenance*

Operation and maintenance of Alternative C would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

### *Decommissioning*

Decommissioning of Alternative C would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative C would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative C.

### 4.18.13 Alternative D – Cross-Valley Alignment

Alternative D would parallel the approved Desert Sunlight gen-tie line for approximately 2,400 feet along the east side of Kaiser Road until intersecting with the existing SCE transmission line ROW. Alternative D would turn southeast and run parallel to the existing transmission ROW for 7.2 miles, then turn south for 0.6 miles, continuing due west for 0.5 miles until it turns south across I-10 and continues to the Red Bluff Substation, see Figure 2-15, in Appendix A.

#### Construction

The estimated number of construction-related truck trips would be the same for Alternative D as for Alternative B. The direct and indirect effects of Alternative D's construction will be the same as those described for Alternative B for effects to performance of the circulation system, roadway damage and hazards, emergency access, and conflicts with applicable congestion management programs or other plans and policies.

*Air Traffic Obstruction and Safety*

Alternative D would be located 2,800 feet south of the former Desert Center Airport, which is now a private special-use airport with no FAA-approved instrument approach procedure. Alternative D would be located at an elevation estimated to be 40 feet higher than the airport, 590 feet and 550 feet, respectively. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. Construction of the Alternative D would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles). However, at this location, the towers would be located below the 20:1 obstacle clearance surface that would typically be associated with a public use airport operated under visual flight rules (VFR). Form 7460-1, Notice of Proposed Construction or Alteration, must be filed with the FAA if an object to be constructed has the potential to affect navigable airspace according to these standards. It is not mandatory that a Form 7460-1 be filed with the FAA because the airport is privately-owned and privately-used and there is no FAA-approved instrument approach procedure. However, it would be prudent to coordinate with the FAA. Coordination with the airport owners (AM-TR-3) would occur prior to construction. No substantially adverse effects would occur.

#### Operation and Maintenance

Operation and maintenance of Alternative D would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B, except for air traffic obstruction and safety. Direct effects of operating and maintaining Alternative D on air traffic would be identical to as those described for construction.

#### Decommissioning

Decommissioning of Alternative D would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

***Mitigation Measures***

Construction, operation and maintenance, and decommissioning of Alternative D would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative D.

### 4.18.14 Alternative E – New Cross-Valley Alignment

Alternative E would exit the south end of the solar facility site at a point 0.8 miles from its southeast corner. It would travel southeast for 1.8 miles across properties owned in fee by MWD then turn east for 0.5 miles, then run southeast for 3.6 miles, then due south for 3.8 miles then turn west for 1.75 miles to reach the Red Bluff Substation, see Figure 2-16, in Appendix A.

***Construction***

The estimated number of construction-related truck trips would be the same for Alternative D as for Alternative B. The direct and indirect effects of Alternative D's construction will be the same as those described for Alternative B for effects to performance of the circulation system, roadway damage and hazards, emergency access, and conflicts with applicable congestion management programs or other plans and policies.

*Air Traffic Obstruction and Safety*

Alternative E would be located one mile north of the former Desert Center Airport at the same estimated elevation. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. Construction of the Alternative E would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport, that are within three nautical miles (3.45 linear miles) nor would the towers be located below the 20:1 obstacle clearance surface that would typically be associated with a public use airport operated under visual flight rules (VFR). No substantially adverse effects would occur.

***Operation and Maintenance***

Operation and maintenance of Alternative E would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B, except for air traffic obstruction and safety. Direct effects of operating and maintaining Alternative E on air traffic would be identical to as those described for construction.

***Decommissioning***

Decommissioning of Alternative E would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

### *Mitigation Measures*

Construction, operation and maintenance, and decommissioning of Alternative E would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative E.

## 4.18.15 Cumulative Effects

Cumulative effects on transportation and public access resulting from the project or an alternative would have the potential to occur if vehicle traffic from other projects traveled the same roadways at the same time as traffic from the DHSP. Construction-related traffic effects would mostly result from increased construction (and decommissioning) traffic on the regional roadways. Operation and maintenance of the proposed project or its alternatives would have minimal transportation or traffic associated with it other than for maintenance activities and solar facility operation. Therefore, the only opportunity for cumulatively significant transportation and/or traffic effects to occur would be during the two-year construction phase of the project and the decommissioning phase.

### *Geographic Scope*

The geographic extent of this cumulative analysis includes the regional roadway network considered for analysis of project effects. Tables 4.1-1 and 4.1-2 respectively provide a comprehensive listing of all existing and foreseeable projects that could contribute to a cumulative effect on the environment. Traffic from existing projects is included in the baseline and therefore is already included in the analysis of project effects discussed above. Therefore, the cumulative analysis focuses on the potential for effects of the proposed project or its alternatives to combine with impacts of reasonably foreseeable projects. Of the reasonably foreseeable projects identified in Table 4.1-2, effects of the Desert Sunlight Solar Farm Project have the most potential to combine with effects of the DHSP due to the proximity of that project to the proposed project and because the construction schedules for each project are expected to overlap. The other projects listed in Table 4.1-2 that would combine with the DHSP are the Eagle Mountain Pumped Storage Project, Palen Solar Energy Project, SCE Red Bluff Substation, Desert Center 50, Sol Orchard, Eagle Mountain Landfill Project, and Silverado Solar Power Project. Table 4.18-4 presents these projects.

**Table 4.18-4. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Transportation and Public Access | The regional roadway network considered for analysis of project-impacts | Performance of Circulation System (LOS) | • Eagle Mountain Pumped Storage Project<br>• Palen Solar Energy Project<br>• Desert Sunlight Project<br>• SCE Red Bluff Substation<br>• Desert Center 50<br>• Sol Orchard<br>• Eagle Mountain Landfill Project<br>• Silverado Power I, II, III |

The temporal extent of this cumulative analysis would be the two-year construction phase of the project and the decommissioning phase.

### *Cumulative Effects Analysis*

**Alternatives 1, 2, 3, and A.** Alternatives 1, 2, 3, and A would not have any project-level effects and would not contribute to cumulative adverse effects.

**Alternative 4.**

*Measures of Effectiveness for Performance of Circulation System (LOS)*

A cumulative LOS analysis was prepared for the proposed project plus the Desert Sunlight Solar Farm Project to identify the effect that concurrent construction of the two projects would have on the study area roadway segments and intersections. Table 4.18-5 summarizes the trip generation for the Desert Sunlight Solar Farm Project. These trips would be expected to combine with the trips generated by the proposed project (summarized in Table 4.18-1).

**Table 4.18-5. Desert Sunlight Solar Farm Construction Trip Generation**

| Component | Daily Trips | AM Peak Period | | PM Peak Period | |
|---|---|---|---|---|---|
| | | IN | OUT | IN | OUT |
| Solar Farm & Transmission Line | 204 | 88 | 2 | — | 10 |
| Red Bluff Substation | 108 | 46 | — | — | 8 |
| Visitors | 10 | — | — | — | — |
| **Personnel Subtotal** | **322** | **134** | **2** | — | **18** |
| Deliveries, Concrete, Equipment | — | 18 | 15 | — | — |
| **Total** | **322** | **152** | **17** | — | **18** |

Source: Appendix H (HKA 2011)

As shown below in Table 4.18-6, the addition of traffic from the proposed project and the Desert Sunlight Solar Farm Project to the regional roadway network is expected to increase the delay at all intersections by one second or less. The LOS of two intersections would be reduced from LOS A to LOS B during the AM Peak Period and the LOS of one intersection during the PM Peak Period would be reduced from LOS A to LOS B. Riverside County and Caltrans consider LOS B to be acceptable. Consequently, drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore, the proposed project or an alternative would not contribute to adverse cumulative effects associated with effectiveness for performance of circulation system.

**Table 4.18-6. LOS Summary for Cumulative Conditions**

| | | Without Project* | | With Project | |
|---|---|---|---|---|---|
| Intersection | Control | Delay (sec) | LOS | Delay (sec) | LOS |
| **AM Peak Period** | | | | | |
| SR-177 / I-10 EB | EB off ramp stops | 9.4 | A | 10.6 | B |
| SR-177 / I-10 WB | WB off ramp stops | 9.4 | A | 10.5 | B |
| SR-177 / Kaiser Road | SB Kaiser Road stops | 8.6 | A | 8.7 | A |
| **PM Peak Period** | | | | | |
| SR-177 / I-10 EB | EB off ramp stops | 9.3 | A | 9.9 | A |
| SR-177 / I-10 WB | WB off ramp stops | 9.7 | A | 10.1 | B |
| SR-177 / Kaiser Road | SB Kaiser Road stops | 8.8 | A | 9.6 | A |

* The background traffic counted at the site was increased by 3% to project the background traffic expected during the construction period. To conservatively account for the construction traffic generated by the Desert Sunlight Solar Farm Project, half of its projected traffic for the Farm construction, the transmission line and Red Bluff Substation construction trips are included. The highest months of construction traffic for the Desert Sunlight Solar Farm Project were anticipated to be the 5th and 6th month of construction prior to the beginning of the DHSP construction.
Source: Appendix H (HKA 2011)

### *Air Traffic Obstruction and Safety*

There are many low-level military flight paths in the area. The implementation of foreseeable projects could present additional obstacles for low-level flight, limiting the military's ability to conduct these operations and resulting in a cumulatively considerable impact to air travel. However, there are few airports in the area and few if any projects would be in proximity to them. Similar to the proposed project, conflicts between cumulative projects and air traffic would be expected to be resolved between the affected airport and the proponent of the specific project; therefore, no cumulative effects would result.

### *Roadway Damage and Hazards*

Impacts of the proposed project related to roadway deterioration would be reduced with implementation of MM TRAN-2, which requires restoration of local roads. Cumulative projects would be expected to be required to implement similar measures. Consequently, any damage to roadways would be expected to be repaired by project proponents (or funds contributed by project proponents) and adverse cumulative effects would not occur.

### *Emergency Access*

With the addition of the proposed project and cumulative traffic, all intersections and roadways segments analyzed would operate at LOS B. At LOS A, traffic can move freely. Therefore, construction traffic would not impact access to the proposed project site (including movement of emergency vehicles) or nearby land uses.

*Conflict with Applicable Congestion Management Program or other Plans and Policies*

As discussed above, the combined effects of traffic from the proposed project and cumulative projects would not reduce the LOS of area facilities below LOS D or LOS E. Therefore adverse cumulative effects related to conflicts with the applicable RTA or CMP would not occur.

**Alternatives 5, 6, and 7.** In light of their similarities, the transportation and public access cumulative effects for Alternatives 5 through 7 would be essentially the same as described for Alternative 4 and cumulative effects would not be substantially adverse.

**Alternative B.** Alternative B would not contribute to cumulative traffic effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie. No cumulative effects would occur due to air traffic obstruction and safety, emergency access, or conflicts with applicable congestion management programs.

**Alternatives C, D, and E**. The transportation and public access cumulative effects for Alternatives C, D, and E would be similar to Alternative B. However, Alternatives C, D, and E would require construction of new gen-tie line towers and therefore would require use of additional construction traffic trips. Even with the addition of up to 30 traffic trips, cumulative impacts would not be substantially adverse because the LOS of the roads would not reduce the LOS of area facilities below LOS D or LOS E. No cumulative effects would occur related to emergency access or conflicts with applicable congestion management programs. Effects of Alternative C, D, and E to roadway damage would be reduced with implementation of MM TRAN-2 as with Alternative 4. Effects of Alternative C to air traffic obstruction would be reduced with implementation of AM TR-3.

### 4.18.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

#### *CEQA Significance Criteria*

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to transportation and public access under CEQA. The project and alternatives would result in a significant impact to transportation and public access if one of the following criteria is met.

TR-1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

TR-2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

TR-3 Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

TR-4 Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

TR-5 Result in inadequate emergency access.

TR-6 Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

For the proposed project and alternatives, the following CEQA criteria were determined to be inapplicable or to result in no impact under all alternatives. The determination regarding these significance criteria is discussed below, and these criteria are not discussed further in this section.

- Substantially increase hazards due to a design feature:

  The proposed project and alternatives would include a design feature or incompatible uses that would result in an increase in hazards; therefore, there would be no impact.

### *CEQA Significance Determination*

Alternatives 1, 2, 3, and A would not have any impacts related to transportation and public access. Under these alternatives the DHSP would not be approved and would not be constructed. Traffic would remain in its existing state.

**Alternative 4.** The proposed solar layout would develop 1,208 acres of BLM-administered multiple use land for solar energy production and would result in approximately 570 daily trips with 114 trips into the solar facility and 20 trips out of the solar facility during the AM Peak Period and 95 trips out of the solar facility during the PM Peak Period. The addition of Alternative 4 construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not change the existing LOS of these intersections, which are operating at LOS A, as noted in Section 4.18.3. Riverside County and Caltrans consider LOS A to be acceptable. Therefore, Alternative 4 would not impact plan, ordinance or policies establishing measures of effectiveness for the performance of the circulation system (TR-1) nor conflict with an applicable congestion management program (TR-2).

Alternative 4 would be located over 2 miles from the nearest airport and landing strip as noted in Section 4.18.3. Therefore, Alternative 4 would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (TR-4).

Alternative 4 would not result in inadequate emergency access because the regional roadways would continue to operate at an acceptable LOS A (TR-5).

Alternative 4 would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (TR-6), see Section 4.18.3.

**Alternative 5.** Impacts from Alternative 5 would be the same as those under Alternative 4.

**Alternative 6.** Impacts from Alternative 6 would be the same as those under Alternative 4.

**Alternative 7.** Impacts from Alternative 7 would be the same as those under Alternative 4.

**Alternative B.** Alternative B would develop a gen-tie line and would result in approximately 30 daily construction trips. The addition of Alternative B construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not change the existing LOS of these intersections, which are operating at LOS A, as noted in Section 4.18.11. Riverside County and Caltrans consider LOS A to be acceptable. Therefore, Alternative B would not impact plan, ordinance or policies establishing measures of effectiveness for the performance of the circulation system (TR-1) nor conflict with an applicable congestion management program (TR-2).

Alternative B would be located over 2 miles from the nearest airport and landing strip as noted in Section 4.18.11. Therefore, Alternative B would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (TR-4).

Alternative B would not result in inadequate emergency access because the regional roadways would continue to operate at an acceptable LOS A (TR-5).

Alternative B would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (TR-6), see Section 4.18.11.

**Alternative C.** Impacts for Significance Criteria TR-1 through TR-6 would be essentially the same for Alternative C as for Alternative B as discussed in Section 4.18.12.

**Alternative D.** Impacts for Significance Criteria TR-1, TR-2, TR-5, and TR-6 would be essentially the same for Alternative D as for Alternative B as discussed in Section 4.18.13.

Alternative D would be located 2,800 feet south of the former Desert Center Airport. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. As noted in Section 4.18.13, Form 7460-1, Notice of Proposed Construction or Alteration, must be filed with the FAA if an object to be constructed has the potential to affect navigable airspace according to FAA standards. It is not mandatory that a Form 7460-1 be filed because the airport is privately-owned and privately-used and there is no FAA-approved instrument approach procedure. Coordination with the airport owners (AM-TR-3) would occur prior to construction would ensure that no changes in air traffic patterns occurred and all impacts to navigable airspace were less than significant (TR-3).

**Alternative E.** Impacts for Significance Criteria TR-1 through TR-6 would be essentially the same for Alternative E as for Alternative B as discussed in Section 4.18.15.

# Section 4.19

## Visual Resources

## 4.19 VISUAL RESOURCES

This section discusses effects on visual resources that would occur with implementation of the Desert Harvest Solar Project (DHSP), including cumulative effects, and mitigation measures to avoid or reduce visual effects. Overall, the DHSP would result in the long-term visual alteration of landscapes and viewsheds from BLM-administered lands, other public lands, and private lands.

An assessment was made of the landscape changes that would be associated with the construction and operation of the proposed project and alternatives as seen from various vantage points including vista viewpoints. A scenic vista is a distant view of a broad area that is visually or aesthetically pleasing, typically because of the mostly undeveloped landscape being viewed. Although there are no federal, state, or locally designated scenic vistas, general scenic vistas across the landscape are still available. Most scenic vistas involving the DHSP are from viewpoints along Interstate (I-) 10, along State Route (SR-) 177 in Desert Center and Lake Tamarisk, and from surrounding ridgelines in Joshua Tree Wilderness, though these locations are more difficult to access.

### 4.19.1 Methodology for Analysis

An *adverse visual effect* typically occurs within public view when: (1) an action perceptibly changes existing features of the physical environment so that they no longer appear to be characteristic of the subject locality or region; (2) an action introduces new features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; or (3) visually prominent natural or cultural features of the landscape become less visible (e.g., partially or totally blocked from view) or are removed. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The degree of the visual effect depends upon how noticeable the adverse change may be. The noticeability of a visual effect is a function of project features, context, and viewing conditions (angle of view, distance, primary viewing directions, and duration of view).

The factors considered in determining adverse effects on visual resources included: (1) scenic quality of the DHSP site and vicinity; (2) available visual access and visibility, frequency, and duration that the landscape is viewed; (3) viewing conditions (distance, angle of observation, relative size or scale, spatial relationships, motion, light conditions, seasonable variability and use, atmospheric conditions, and recovery time) and the degree to which the DHSP components would dominate the view of the observer; (4) resulting contrast (form, line, color, and texture) of the project facilities or activities with existing landscape characteristics; (5) the extent to which DHSP features or activities would block views of higher value landscape features; and (6) the level of public interest in the existing landscape characteristics and concern over potential changes. Digital techniques were used to produce simulations of the DHSP as it would appear with implementation as seen from several Key Observation Points (KOPs). The proposed project and alternatives simulations assisted in the on-site assessment of the contrast of the action alternatives with existing landscape elements.

Effects on visual resources within the project study area (northern Chuckwalla Valley and surrounding ridgelines) could result from various activities including: facility construction, establishment of construction staging areas and access roads, and project operation or presence of the built facilities. The impact methodology and results of the impact assessment are discussed below. The impact methodology is described in greater detail in Appendix G-1 and the results of the impact assessment are summarized and presented as a series of foldout tables in Appendix G-2. Appendix G-4 presents the Visual Resource Management (VRM) Contrast Rating forms for each KOP.

### *BLM VRM Contrast Analysis Methodology*

Under the BLM's Visual Contrast Rating (VCR) System, the proposed project and alternatives are analyzed for their effects on visual resources using an assessment of the visual contrast within the landscape created by components of the DHSP. Impacts to the inventoried visual resource values and conformance with Interim VRM Class Objectives are evaluated through a contrast rating process described below, and in greater detail in **Appendix G-1**. The degree to which the proposed project and alternatives adversely affect the visual quality of a landscape is directly related to the amount of visual contrast between the action alternative and the existing landscape character.

Visual Contrast Ratings were conducted using the BLM's VRM System manuals (BLM 1986b, 1984). The Visual Contrast Rating Forms are provided in Appendix G-4. Under the VRM System, the degree to which a project or activity affects the visual quality of a landscape depends on the visual contrast created between the project components and the major features, or predominant qualities, in the existing landscape. Visual contrast evaluates a project's consistency with the visual elements of form, line color, and texture already established in the viewshed. In a sense, visual contrast indirectly indicates a particular landscape's ability to absorb a project's components and location without resulting in an uncharacteristic appearance. Other elements that are considered in evaluating visual contrast include the degree of natural screening by vegetation and landforms; placement of structures relative to existing vegetation, landforms and other structures; observer's angle of view relative to the proposed action; distance from the point of observation; viewing duration/spatial relationships; atmospheric conditions; season of use; lighting conditions; and relative size or scale of a project. Once the degree of anticipated contrast is determined (ranging from none to strong), a conclusion on the overall level of change is made (ranging from very low to high) and compared to the applicable VRM Class objective for a determination of conformance with the Interim VRM Class objectives.

For DHSP, the assigned Interim VRM Class is **VRM Class IV**. The management objective for VRM Class IV is as follows.

> ***VRM Class IV**. The objective is to provide for management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic landscape elements.*

According to BLM policy (BLM Manual H-8410-1; BLM 1986a) Interim Visual Resource Management (VRM) classes are established where a project is proposed and there are no approved VRM objectives in the applicable land use plan, as is the case for the DHSP project site which is governed by the California Desert Conservation Area (CDCA) Plan. These interim classes must 1) consider the area's visual values as summarized in the latest visual resource inventory results and 2) be consistent with the multiple-use objectives and use allocations set forth in the plan which covers the DHSP site. While a comprehensive plan amendment is underway (Desert Renewable Energy Conservation Plan) which will establish long-term VRM classifications for the entire CDCA Plan area, the CDCA Plan currently does not have established VRM objectives. Therefore, until this landscape-level plan amendment is completed the BLM is establishing interim VRM classes consistent with H-8410-1 for project-level actions within the CDCA planning area, such as the DHSP.

An analysis of scenic quality, viewer sensitivity and distance zones in the most recent Visual Resource Inventory (VRI) for the project study area concluded that the inventory class is VRI II (see Section 3.19.1 and Appendix G-1 for additional discussion of VRI). The CDCA Plan allocation for the project study area is Multiple Use Class (MUC) M, which allows for solar electric facilities. Specific projects must be evaluated through a plan amendment to ensure consistency with all goals and objectives for this class. The conformity of the DHSP with the CDCA Plan's Energy Production and Utility Corridors Element Decision Criteria is shown in Table 3.22-2.

Mitigation Measures VR-1 through VR-5 would be implemented to minimize the visual impacts of the proposed project or any action alternatives. However, the level of contrast with the surrounding landscape would still be high when viewed from a variety of vantage points including elevated viewpoints in surrounding wilderness areas and along I-10. Taking the inventory class into consideration, recent developments that have been undertaken and/or approved in the project study area, the employment of mitigation measures, and the DHSP's consistency with the MUC, an Interim VRM Class IV has been established for the DHSP site. The objective of this class is "…to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt must be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic visual elements."

Note that this interim VRM class assignment applies only to this specific project footprint. Any other projects would need to be analyzed and assigned an interim VRM class on a case by case basis based on an analysis of their conformance with land use plan objectives. Also, the BLM will require that all relevant and reasonable mitigation measures be employed to reduce project contrast to moderate levels (commensurate with Class III VRM objectives), except for those specific project components and from those specific KOPs where it can be demonstrated that, even with mitigation, the project still has a high degree of contrast.

In addition to the permanent visual contrast created in the landscape, the proposed project and alternatives were analyzed for adverse effects due to lighting and glare, visible dust plumes, as well as temporary construction-related disturbances.

### ***Direct versus Indirect Effects on Visual Resources***

The impact discussions presented later in this section address the direct effects on visual resources since visual resources effects tend to almost always be direct. Two exceptions include increased traffic on roadways beyond the immediate DHSP site during construction and perceptions of (visible) regional industrialization. Increased traffic associated with construction is addressed under the construction effects heading. Perceptions of regional industrialization are addressed in the cumulative effects section.

### *Combined Effects of Solar Facility and Gen-Tie Alternatives*

As in other sections of Chapter 4 of this EIS, visual effects analysis is conducted separately for the solar facility alternatives and the gen-tie line alternatives. This methodology allows for a clean comparison among alternatives, and a clean evaluation of the combination of any solar facility action alternative with any gen-tie action alternative. Therefore, the impact analysis below does not present the combined effects of each solar facility action alternative with each gen-tie action alternative. That combination of effects is done in Section 2.14, Summary of Comparison of Effects by Alternative. Nevertheless, for visual resources, it is useful for the analyst to prepare simulations that capture both the solar facility alternatives and the gen-tie line alternatives. Therefore, it is noted that for visual resources the combined effects of the gen-tie action alternatives with any of the solar facility action alternatives are additive, and they typically slightly increase the severity of visual effects compared to the effects of the solar facility alternatives alone, as the solar facility typically represents the most prominent visual feature of the DHSP overall. In addition, the reader is directed to the simulations prepared for the DHSP presented in Appendix A, which simulate the presence of both the solar facility and gen-tie alternatives.

### *Mitigation Approach*

Mitigation for visual resources effects resulting from energy infrastructure and similar types of industrial facilities typically focuses on methods to minimize the visibility of the resulting visual change by (1) relocating the change (action) to a less visible location; (2) screening the change from view; or (3) blending the change with the background (by selective use of coloration and/or screening). By their very nature, solar facilities and transmission lines tend to be large and exposed, and thus, difficult to either hide from view or blend into the background. Also problematic is the construction of permanent access and spur roads and "temporary" cleared areas that become persistent in arid and semi-arid landscapes where vegetation recruitment and growth are slow. These features often cause land scarring and unnatural and discordant demarcations in the vegetation landscape that increase the visual contrast of a project's activities. In some cases there are techniques that can reduce the prominence of land scarring and changes though they may not substantially reduce the adverse effect.

One technique that can be effective in mitigating the visual impact of large transmission structures is changing the structure design. Lattice structure designs tend to blend with background landscapes better when viewed from distance because of the "transparency" effect imparted by the lattice design. However, from closer viewing locations, the lattice structure appears very complex and industrial. Tubular steel structures tend to be more visible at distance than lattice structures because of the solid mass of the vertical support structure and the absence of the transparency effect. However, when viewed from closer viewing locations, the tubular steel structure appears simpler in design and less complex and massive relative to a lattice structure. For the DHSP, the proposed and action alternative gen-tie routes would be visible from a variety of vantagepoints both close and distant. So, there is not an ideal structure design, The tubular design would be less visually contrasting along roadways and adjacent to residences, and the lattice design would be more appropriate for more distant locations in the center of Chuckwalla Valley. However, transitions between different structure designs are inherently very visually contrasting. So, mixing structure types is generally not advisable.

Undergrounding transmission lines can also be an effective solution in mitigating aboveground visual impacts. However, the BLM has previously determined during the Desert Sunlight Solar Farm environmental review process that undergrounding would not be an appropriate mitigation approach in this location.

The following techniques were considered where appropriate for the proposed project and action alternatives:

- Consider alternative low-impact construction techniques to minimize prominent land scarring visible to sensitive viewpoints.
- Require structure, non-specular surface and color treatments to reduce visual contrast associated with specularity and discordant color and/or glare, and facilitate the blending of the structure with the surrounding landscape.
- Require vegetated buffer zones adjacent to major travel corridors to provide partial screening of Project facilities.
- Require revegetation and restoration efforts to mitigate the unnatural demarcation in vegetation landscapes caused by removal of, or changes in the vegetation within the Project area as a result of clearing and maintenance.
- Require strategic planting of revegetation to intersect sightlines and screen structures from view to the extent feasible.
- Require the co-location or consolidation of facilities to minimize the proliferation of built facilities and industrial character across the desert landscape.
- Require strategic siting of structures to reduce in-line views of linear facilities and/or reduce the number of structures visible in the primary cone of vision of travelers on major and local roadways.

For each of the visual effects identified, the mitigation approaches discussed above were evaluated for applicability and likelihood of success. In some cases, the combination of existing landscape characteristics and structure prominence and visibility resulted in effects that could not be mitigated. However, where mitigation opportunities were identified, they are discussed.

### 4.19.2 Applicant Measures

The Applicant has proposed the following measures to reduce visual effects.

- Equipment other than the solar panels will have a non-reflective surface and neutral colors to minimize their visual impacts to the extent practical.
- A paint color acceptable to the BLM will be used on all facilities that can be painted to blend the facility with the existing surroundings.
- Nighttime lighting will be limited to areas required for operation, safety, or security, and will be directed or shielded from major roadways or possible outside observers.
- Lighting at high illumination areas not required on a continuous basis will be controlled by switches, motion detectors, etc to light the areas only when required.
- Exterior lights will be hooded and lights will be directed onsite so that light or glare will be minimized.

- Low-pressure sodium lamps and fixtures of a non-glare type will be specified.

### 4.19.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and the BLM would not amend the CDCA Plan 1980, as amended. As a result, no solar energy project would be constructed on the Project site, and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no adverse visual effects associated with the DHSP would occur.

### 4.19.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.19.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.19.6 Alternative 4 – Proposed Solar Project

The proposed solar facility would include the construction and operation of a 150 MW photovoltaic solar facility on approximately 1,208 acres.

***Construction***

Construction of Alternative 4 would cause temporary visual effects due to the presence of equipment, materials, and workforce. These effects would occur throughout the development area. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Visible traffic would also increase along Kaiser Road, SR-177, and I-10. Grading activities have the potential to generate dust clouds, which can be visually distracting if not controlled properly as required in Mitigation Measure VR-1 (see mitigation measures at the end of this sub-section). Construction activities would be visible from Kaiser Road, SR-177, I-10 BLM recreational access roads, the community of Lake Tamarisk, Desert Lily Sanctuary Area of Critical Environmental Concern (ACEC), Joshua Tree Wilderness in Joshua Tree National Park, and the Chuckwalla Mountains Wilderness. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects when viewed from the project vicinity and all of the KOPs. However, the majority of construction activities and equipment brought onto the project site would be temporary in nature, although the vast majority of the area disturbed by construction would eventually be occupied by project facilities (see discussion of Operation and Maintenance impacts below). Those areas of temporary disturbance of the soil surface (characterized by high color, line, and texture contrasts) associated with construction would remain visible from various vantage points for some period after the conclusion of construction activities because revegetation of areas in the desert region where the project is located is difficult and generally of limited success. These longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

In addition to the direct visual resource impacts, the construction of Alternative 4 would also result in one indirect visual effect. Specifically, visual effects related to an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer, and therefore, the resulting visual effect would not be substantial.

### *Operation and Maintenance*

An analysis of operation and maintenance effects was conducted for the view areas represented by KOPs 1 through 4 (Figure 3.19-3), which were selected for in-depth visual analysis. The results of the effect analysis are discussed below by KOP and presented in the Visual Analysis Summary Table included as Appendix G-2. Contrast Rating Data Sheets are provided in Appendix G-4.

### *Effects Context for Joshua Tree Wilderness and National Park*

The effects discussed below under KOPs 1 and 2 are representative of the visual effects that would be experienced from similar locations, including both lower elevation and elevated viewing opportunities, in the surrounding perimeters of Joshua Tree Wilderness and National Park. While much of this area of the national park is more remote, less accessible, and less used relative to the more accessible regions of the park to the west and north, the area is still an important destination for its geological, backcountry wilderness, and dark sky values. Yet, with increasing distance from the Alternative 4 solar facility site, project effects become less discernible. The lower elevation viewpoint at KOP 1 illustrates the effect of perspective foreshortening, which reduces the apparent size and scale of the project due to a low elevation difference and the narrow angle of view. At these greater viewing distances, it is at the elevated viewpoints (illustrated by KOP 2) where the greater visual effect would occur as the increased elevation causes the size and shape of the project area to become increasingly apparent, along with its associated form, line, and color visual contrasts.

As illustrated in the viewshed maps presented as Figures 3.19-1A (solar panels) and 3.19-1B (transmission structures), the number of impacted National Park acres within the DHSP totals 37,508 acres, which represents approximately 4.8 percent of the park's 776,083 total acres. Approximately two-thirds of the impacted acres (25,314 acres) would have views of the solar facility. Furthermore, of the 37,508 impacted park acres, only 7,344 acres, or slightly less than one percent of the park's total acreage, would be within the foreground/middleground viewing distance zone of five miles or less. Another 27,821 acres, or approximately 3.6 percent of the park's total acreage, would be in the background distance zone of 5 to 15 miles. The remaining 2,343 impacted park acres (approximately 0.3 percent of the total park acreage) would be more than 15 miles from the Alternative 4 site. While the total number of impacted park acres is small relative to the whole, all of the park's acreage is important from both a public visitation and sensitivity standpoint and resource protection standpoint. Thus, visual effects on wilderness and parklands should be avoided or minimized where possible. Effective implementation of the mitigation measures presented below will be important.

Of particular concern is Alternative 4's potential effect on the Dark Sky resource that Joshua Tree National Park is known for throughout the National Park System. It is estimated that only approximately 10 percent of the population of the United States is able to see the night sky in its natural, unpolluted state. Joshua Tree National Park is noted for initiating partnerships with surrounding communities in an effort to limit light from spilling over park boundaries. To serve this increasing public interest, Joshua Tree National Park offers a variety of Night Sky programs. In the immediate solar facility region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of Alternative 4. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential.

### *KOP 1 – Joshua Tree Wilderness – Eagle Mountains*

Figure 4.19-1A presents the existing view from KOP 1 in Joshua Tree Wilderness. The view is to the south from a low ridge at the northeast extent of the Eagle Mountains, at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley backdropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. Figure 4.19-1B presents a visual simulation that depicts the addition of Alternative 4. As shown in the simulation, the solar facility would appear small in scale relative to the panoramic landscape and result in the introduction of barely discernible built structures that, at an approximately eight-mile viewing distance, would appear as a low, narrow, light gray to tan-colored, horizontal band along the valley floor (for the solar farm), and faintly visible, vertical structural forms (for the transmission structures). Although the solar facility would be centrally located in the field of view from KOP 1, the solar facility structures would not be perceived as prominent features in the landscape when viewed from these more distant, lower elevation viewpoints within Joshua Tree Wilderness (and National Park), as represented by KOP 1. View impairment of the valley floor or other background landforms and natural features would be minimal. Although the view from this and similar distant view locations would be static, offering extended view durations, these views also have the potential to be partially obscured by poor atmospheric conditions, such as haze.

The fairly indistinct low, horizontal form and line of Alternative 4 would result in weak degrees of structural visual contrast for form, line, color and texture relative to the natural features of the existing landscape. The most notable characteristic of the development would be the color contrast resulting from the reflection of light off the solar panel structural supports (from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint) and the lighter color of the graded soils. The resulting overall visual change caused by Alternative 4 would be low and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1 and other similar more distant, lower elevation vantagepoints in Joshua Tree Wilderness and National Park. Although the resulting visual effect would be adverse (see discussion below under Section 4.19.16 CEQA Considerations), the low level of change would be allowed under the Interim VRM Class IV management objective. Furthermore, Alternative 4 would retain the existing character of the landscape and would not attract the attention of the casual observer. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment), as discussed below.

***KOP 2 – Joshua Tree Wilderness – Coxcomb Mountains***

Figure 4.19-2A presents the existing view from KOP 2 in Joshua Tree Wilderness along the western flank of the Coxcomb Mountains, northeast of the solar facility site. The view is to the southwest from an elevated vantage point overlooking the predominantly natural appearing northern portion of Chuckwalla Valley backdropped by the rugged, horizontal to angular forms of the Chuckwalla Mountains and Wilderness (to the south and southwest) and Eagle Mountains (to the west). Figure 4.19-1B presents a visual simulation that depicts the addition of Alternative 4. Similar to KOP 1, from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint. As shown in the simulation, the solar facility would result in the introduction of a large-scale complex of built structures and graded surfaces forming a spatially and visually prominent series of geometric patterns on the valley floor, that would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape and background mountains.

The solar facility site would be centrally located within the field of view from this location and view impairment of the valley floor would be noticeable. The view from this and similar locations within the Wilderness would be static, offering extended view durations. At this approximate 4-mile viewing distance, poor atmospheric conditions (haze) would have less of an effect on facility visibility than for more distant views represented by KOP 1. The light-tan color of the graded soils would result in a moderate degree of visual contrast relative to the darker earth-tone colors of the surrounding landforms. The relatively prominent, hard lines associated with the new vegetation demarcations would result in a moderate degree of visual contrast for line.

The prominent geometric patterns of the panel arrays would result in strong form contrast and moderate to strong line contrast with the naturally irregular landforms and lines of the existing landscape. The gray color and reflective characteristics of the panel support structures would contribute to the moderate color contrast with the existing darker grey-greens, tans and reddish hues of the foreground/middleground landscape.

The solar facility, with its prominent geometric patterns, would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb and Palen mountains). As viewed from this elevated location in Joshua Tree Wilderness, Alternative 4 would not retain the existing character of the landscape and would attract the attention of the casual observer. However, the resulting moderate-to-high level of change would be allowed under the Interim VRM Class IV management objective. Even though the resulting visual effect would be substantial and adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be reduced somewhat through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment), as discussed below.

### *KOP 3 – Kaiser Road in the Immediate Project Vicinity*

Figure 4.19-3A presents the existing view to the east from KOP 3 on Kaiser Road in the immediate vicinity of Alternative 4. The view captures a central portion of the northern Chuckwalla Valley backdropped by the southern extent of the Coxcomb Mountains and the more distant Palen Mountains. Figure 4.19-3B presents a visual simulation that depicts a portion of the solar facility. As shown in the simulation, the solar facility would result in the introduction of visually prominent built structures into a foreground/middleground landscape generally lacking similar built features of industrial or technological character. The solar facility would appear as prominent horizontal and geometric features with distinct horizontal lines associated with specific panel arrays, development units, and vegetative demarcations from graded surfaces. The resulting form and line contrast of the solar panels would be moderate-to-strong relative to the natural character of the existing landscape with its rugged horizontal to angular forms and irregular lines. The apparent color of the solar panels would vary depending on viewpoint location, view orientation, sun angle, time of day, and meteorological conditions. Apparent color could range from bluish and bluish-gray hues (as shown in the simulation), to brighter light grays, to medium dark gray, and even black when directly facing a panel array and viewing north. The various colors would result in moderate degrees of visual contrast relative to the lighter earthtones and muted greens of the existing landscape. Similarly, the smooth industrial surfaces and textures of the solar arrays would appear out of place in this rugged desert landscape with the existing matte to granular textures of rock, soil, and vegetation. Also, the solar arrays would cause partial view blockage of the Chuckwalla Valley floor. These contrasts would substantially degrade the existing visual character and quality of the Alternative 4 site and its surrounding landscape.

The solar facility with its prominent horizontal geometric structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb and Palen mountains). Also, the solar facility would constitute a co-dominant to dominant feature in the landscape, depending on proximity to the development area, view orientation, and presence or absence of intervening vegetation, thus, attracting the attention of the casual observer. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim

VRM Class IV management objective (see the VRM Contrast Rating form for KOP 3 in Appendix G-4).

Although the resulting visual effect would be substantial when viewed from KOP 3 and other at-grade vantage points in relatively close proximity to the Alternative 4 site (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be reduced with the effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), VR-4 (Surface Treatment), and VR-5 (Vegetative Screening Buffer), as discussed below. Also, effective implementation of Mitigation Measure VR-6 (Night Lighting Control) would be essential to ensure that additional night sky light pollution does not occur from implementation of Alternative 4. Of particular importance is Mitigation Measure VR-5, which calls for the maintenance of a minimum 200-foot wide undisturbed, naturally vegetated buffer along the Alternative 4 perimeters and nearby roadsides. The purpose of the buffer is to provide vegetative screening of the low-profile panel arrays. The minimum 200-foot width of the buffer is necessary given the scarcity of natural vegetation in this landscape. Although the buffer may not completely screen the Alternative 4 facilities from view (particularly the water tank, O&M facility, substation, and collector poles), the intent is to provide sufficient screening to enable only intermittent views of the predominant photovoltaic arrays, thus reducing the prominence of structural contrast. At present, the more extended view durations of the Alternative 4 site from Kaiser Road can range from approximately 30 seconds to approximately 90 seconds. The vegetative buffer and screening vegetation would break up the visual mass of the arrays, reduce the view durations, and limit the visual access to the solar facility site, thereby helping to reduce the resulting adverse visual effect.

#### *Effects Context for Desert Lily Sanctuary ACEC*

The effects discussed below under KOP 4 are representative of the visual effects that would be experienced from various locations within the southern half of the ACEC, which is an important and popular regional destination because of its botanical values. As illustrated in the viewshed maps presented as Figures 3.19-1A (solar panels) and 3.19-1B (transmission structures), the number of potentially impacted ACEC acres within the Alternative 4 viewshed (based on terrain-only modeling) totals 2,049 acres, which represents almost all of the ACEC's 2,055 total acres. Approximately 39 percent of the impacted acres (796 acres) would be within the viewshed of the low-profile Alternative 4 solar facility, all within the foreground/middleground distance zone. (By comparison, approximately 56 percent of the impacted acres (1,141 acres) would be within the viewshed of the high-profile Alternative 7 solar facility, again, all within the foreground/middleground distance zone.) Given the ACEC's importance from both a public visitation and sensitivity standpoint, visual effects on the ACEC should be avoided or minimized where possible, and effective implementation of the mitigation measures presented below will be important. However, it is important to remember that intervening vegetation, which is not taken into consideration in the digital terrain modeling, would substantially limit views of the solar facility from the ACEC, particularly for the proposed low-profile facility (as discussed below under KOP 4).

#### *KOP 4 – Desert Lily Sanctuary ACEC*

Figure 4.19-4A presents the existing view to the west from KOP 4 in the Desert Lily Sanctuary ACEC, just east of SR-177. The view encompasses a portion of the northern Chuckwalla Valley backdropped by the Eagle Mountains. Figure 4.19-4B presents a visual simulation that demonstrates the inability to view the low-profile solar farm and the limited visibility of the more distant transmission line. As shown in the simulation, the Proposed project (indicated by the white arrows) would be screened from view by intervening vegetation. The transmission structures (indicated by the black arrows) are only intermittently visible and appear barely discernible at this viewing distance of approximately 5.5 miles. As a result, neither the solar farm nor the transmission line structures would be perceived as prominent features in the landscape, and view impairment of the valley floor or other background landforms would be minimal. The resulting structural form and line contrast would be weak, and there would be no discernible color or texture contrast when viewed from the Desert Lily Sanctuary ACEC. Also, as viewed from the ACEC, the project would retain the existing character of the landscape and would not attract the attention of the casual observer. The resulting very low level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 4 in Appendix G-4).

This viewpoint analysis is representative of other possible views from the ACEC and illustrates the effectiveness of an intervening vegetative buffer (as required by Mitigation Measure VR-5) in blocking sightlines to the Project site from KOP 4. Therefore, the ACEC would not be adversely affected by Alternative 4, and the resulting visual effect would not be substantial (see discussion below under Section 4.19.16 CEQA Considerations). Although no adverse visual effects are expected to occur at the Desert Lily Sanctuary ACEC, Mitigation Measures VR-2 through VR-6 are still required to further mitigate visual effects at this KOP and to reduce the possibility that any unexpected adverse visual effects occur.

### *Linear Viewpoint Analysis*

Section 3.19.2 and Figure 3.19-2 present a linear viewpoint analysis of the solar facility site (not the gen-tie alternative routes) from the three major roadways in the project area – Kaiser Road, SR-177, and I-10. As noted in that analysis, unlike stationary KOP views, transient views, while traveling along roadways, are variable and constantly change depending on viewing angles and the presence of intervening screening. The following paragraphs briefly encapsulate the overall impact on views from the three main roadways by direction of travel.

**Northbound Kaiser Road.** There are numerous Alternative 4 site viewing opportunities along northbound Kaiser Road; some in close proximity, and some that are more distant; some with unobstructed views, and others that are partially or completely obscured by roadside and intervening vegetation. Project facilities that are visible within the primary cone of vision of travelers on Kaiser Road would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for briefer durations of view. Segments represented by red and orange in Figure 3.19-2 would have the clearest views of the solar facility and would experience the greatest visual impact. KOP 3 is representative of the more proximal views in this category but includes only 35 percent of the total viewing opportunity along northbound Kaiser Road. The remaining 65 percent of northbound Kaiser Road would have limited to no views of the solar facility and would likely not experience substantial visual effects. These less affected road segments are concentrated further south on Kaiser Road in the vicinity of Lake Tamarisk.

**Southbound Kaiser Road.** Viewing opportunities along southbound Kaiser Road are limited to the road segment immediately adjacent to the Alternative 4 site (90 degree view from the road), and extending north approximately 3.2 miles. Project facilities would be visible for an extended duration of view and within the primary cone of vision of travelers on southbound Kaiser Road for most of this segment as the road converges on the Alternative 4 site, before turning to pass immediately west of the site. Facilities that are visible at right angles to the direction of travel would be visible for a shorter duration of view. Views from all of the southbound segment would be minimally screened (represented by the orange color in Figure 3.19-2) and, for the most part, would have unobstructed views of the solar facility. Therefore, southbound travelers on Kaiser Road approaching from the north would experience a substantial visual impact.

**Northbound SR-177.** There are numerous opportunities to view the solar site along the first 5.7 miles of northbound SR-177 north of Desert Center (see Figure 3.19-2). However, only the southernmost 1.8 miles of SR-177, closest to Desert Center, would have unobstructed views of the site (represented in red in Figure 3.19-2). This segment would experience substantial visual impact. The more northerly 3.9 miles of SR-177, in closer proximity to the Alternative 4 site, would have limited to no views of the solar facility (shown in yellow and green in Figure 3.19-2) due to intervening vegetation and structures and would likely not experience substantial visual effects. Similarly, the Desert Lily Sanctuary ACEC, adjacent and at the northern range of views along SR-177, is also exposed to limited Alternative 4 site viewing opportunities due to screening by intervening vegetation. Thus, KOP 4 is also somewhat representative of views along SR-177 in terms of the limited viewing opportunity.

**Southbound SR-177.** Viewing opportunities along southbound SR-177 are limited to 3.2 miles of road segments with minimal to no site viewing opportunities due to the presence of considerable vegetative screening. Therefore, southbound travelers on SR-177 would not experience a substantial visual impact from the solar facility.

**Eastbound I-10.** There is considerable viewing opportunity from eastbound I-10 when approaching the vicinity of Desert Center from the west. Of the 9.5 miles of potential solar facility views, 8.5 miles (or 89 percent) have relatively unobstructed views of the solar facility site and would experience substantial visual impact from the solar facility in spite of a greater viewing distance ranging from approximately 5.5 to 11.5 miles. KOP 8A is representative of the solar facility views in this category even though the viewpoint is located on the westbound side of I-10.

**Westbound I-10.** There is also considerable viewing opportunity along westbound I-10 when approaching the vicinity of Desert Center from the east. Of the 9.3 miles of potential solar facility views, approximately 7.2 miles (or 77 percent) have unobstructed views of the solar facility site and would experience substantial visual impact from the solar facility in spite of a viewing distance ranging from approximately 5.5 to 11 miles. KOP 8A on westbound I-10 is representative of the solar facility views in this category.

### ***Decommissioning***

After the end of the solar facility's useful life, it would require decommissioning with the intent of returning the Alternative 4 area to pre-project conditions. However, as of the date of this visual analysis, no Decommissioning Plan has been prepared. Short-term, deconstruction activities would result in visual impacts similar to construction with the visible intrusion of equipment, materials, deconstruction activities, and increased road traffic. Longer-term, even the complete removal of the facility would leave a very prominent visual effect over the entire site due to the strong color and line contrast created between graded, disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the Applicant to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

### *Mitigation Measures*

The following mitigation measure shall be implemented to reduce effects related to Construction Impacts.

**MM VR-1** **Reduce Construction Related Impacts.** The Applicant shall minimize construction related impacts as described below.

- Minimize Vegetation Removal. Only the minimum amount of vegetation necessary for the construction of structures and facilities shall be removed. Topsoil located in areas containing sensitive habitat, to the extent such areas are not already avoided, shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation.
- Reduce Land Scarring and Vegetation Clearance associated with gen-tie Construction. Vegetation within the gen-tie ROW and ground clearing at the foot of each tower and between towers shall be limited to the clearing necessary to comply with electrical safety and fire clearance requirements.
- Reduce Color Contrast of Land Scars and Graveled Surfaces. Where construction would unavoidably create land scars visible from sensitive public viewing locations, disturbed soils shall be treated with an appropriate material (Eonite, Permeon, or similar). The material shall be approved by the BLM and the intent shall be to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings. The Applicant shall consult with the BLM and/or their authorized representative on a site-by-site basis and obtain written approval prior to the use of any colorants.
- Reduce In-Line Views of Land Scars that would result from construction of gen-tie access roads. Access or spur roads shall be constructed at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, the Applicant shall consult with the BLM and a Designated Biologist to identify the following.
    - o The access roads or portions of roads that would be highly visible from sensitive viewing areas.
    - o Approximate location and length of alternative access road routes that would replace proposed roads. Define habitat affected and steepness of

terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall evaluate whether the overall impacts of the alternate access road are less than that of the original access road design.

- o Areas where "drive and crush" access is a feasible measure to avoid access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, the Applicant shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
- o The Applicant shall submit a map and/or table to the BLM for review and approval at least 60 days before the start of construction to document the roads, or portions of roads, that have been evaluated for reduction of in-line views or scars and the proposed resolution for each access road. Resolution options include retaining proposed roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road routes.

- Prohibit Construction Marking of Natural Features. No paint or permanent discoloring agents shall be applied to rocks or vegetation to indicate survey or construction activity limits.
- Fugitive Dust, Waste, and Trash Control. To minimize fugitive dust on the Project site, a dust control plan shall be developed which will place limits on the speed of travel for construction vehicles and will apply dust palliatives to the site, as described in AM-AIR-1 and AM-AIR-6 and in compliance with SCAQMD Rule 403. Furthermore, during construction, all trash and food-related waste shall be placed in self-closing containers and removed weekly as needed from the site

The following mitigation measure shall be implemented to reduce effects related to Grading and Surface Disturbance Impacts.

**MM VR-2** **Revegetation.** The Applicant shall minimize the amount of ground surface to be disturbed and shall revegetate disturbed soil areas as described below.

- Limit Disturbance Areas. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging before construction in consultation with the Designated Biologist and BLM's visual specialist. Parking areas and staging and disposal site locations shall be similarly located in areas approved by the Designated Biologist and BLM's visual specialist. All disturbances by project vehicles and equipment shall be confined to the staked and flagged areas.
- Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the staked and flagged limits as described above. All vehicles passing or turning around shall do so within the limits or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route

shall be clearly marked (i.e., staked and flagged) before the start of construction in consultation with the Designated Biologist and the BLM's visual specialist.

- Revegetation of Temporarily Disturbed Areas. The Applicant shall prepare and implement a Revegetation Plan (as required in Mitigation Measure VEG-5) to restore all areas subject to temporary disturbance to pre-project grade and conditions. Temporarily disturbed areas within the project area include, but may not be limited to, all proposed locations for linear facilities, temporary access roads, construction work temporary lay-down areas, and construction equipment staging areas. Revegetation shall minimize visual effects by re-establishing the pre-existing colors, textures, and forms of the landscape and shall visually integrate the adjacent edges by removing the lines of demarcation. Plantings as part of revegetation along roadways and the boundaries of other disturbed areas shall be irregularly placed with scalloped edges to reduce the hard line visual impact, especially as seen from Kaiser Road and SR-177.

No more than 30 days following the publication of the BLM's Record of Decision/ROW Issuance, whichever comes first, the Applicant shall submit to the BLM a final agency-approved Revegetation Plan that has been reviewed and approved by the BLM.

The following mitigation measures shall be implemented to reduce the effects related Project-induced visual contrast. All mitigation measures shall be approved by the BLM or a BLM approved landscape architect prior to construction.

**MM VR-3** **Project Design to Reduce Visual Contrast.** The Applicant shall use proper design fundamentals to reduce the visual contrast to the characteristic landscape. These include proper siting and location; reduction of visibility; repetition of form, line, color (see Mitigation MM-VR-4) and texture of the landscape; and reduction of unnecessary disturbance. The Applicant shall provide to the BLM for review and approval, a draft Project Design Plan describing the siting, placement and other design considerations to be employed to minimize project contrast. The draft plan must explain how the design will minimize visual intrusion and contrast by blending the earthwork, vegetation manipulation and facilities with the landscape. The draft plan shall be submitted to BLM for approval at least 30 days prior to (a) ordering the first structures that are to be color-treated during manufacture, or prior to construction of any of the facility components, whichever comes first. If the BLM notifies the Applicant that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, the Applicant shall prepare and submit for review and approval a revised plan. Design strategies to address these fundamentals shall be based on the following factors.

- Earthwork. Select locations and alignments that fit into the landforms to minimize the sizes of cuts and fills.

- Vegetation Manipulation. Use existing vegetation to screen the development from public viewing. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes.
- Gen-tie Structures. Minimize the number of gen-tie structures and combine different activities in one structure where possible. Use natural, self-weathering materials and chemical treatments on surfaces to reduce color contrast. Bury all or part of the structure. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural landforms and vegetation. Reduce the line contrast created by straight edges. Use road aggregate and concrete colors that match the color of the characteristic landscape surface. Co-locate facilities within the same disturbed corridor.
- Reclamation and Restoration. Blend the disturbed areas into the characteristic landscape including gen-tie access roads and disturbed areas created during solar facility perimeter fence installation. Replace soil, brush, rocks, and natural debris over these disturbed areas. Newly introduced plant species shall be of a form, color, and texture that blend with the landscape.

**MM VR-4** **Surface Treatment of Project Structures/Buildings**. The Applicant shall treat the surfaces of all project structures and buildings visible to the public such that: a) their colors minimize visual contrast by blending with the characteristic landscape colors; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission structures and conductors shall be non-specular and nonreflective, and the insulators shall be nonreflective and nonrefractive. The Applicant shall consider the use of special galvanizing treatments or post manufacture application of chemical treatments (such as Natina Steel) to ensure that transmission structures are sufficiently dulled and non-reflective and of the appropriate color to blend effectively with the surrounding landscape. The Applicant shall comply with BLM requirements regarding appropriate surface treatments for project elements.

The Applicant shall provide to the BLM for review and approval, a draft Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all facilities to be constructed. The draft Surface Treatment Plan must explain how the design will reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The draft plan shall be submitted to BLM for approval at least 30 days prior to (a) ordering the first structures that are to be color-treated during manufacture, or prior to construction of any of the facility components, whichever comes first. If the BLM notifies the Applicant that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, the Applicant shall prepare and submit for review and approval a revised plan. The draft Surface Treatment Plan shall include the following.

- Specification, and 11” x 17” color simulations at life-size scale, of the treatment proposed for use on project structures, including structures treated during manufacture.

- A list of each major structure, building, tower and/or pole, and fencing specifying the color(s) and finish(es) proposed for each (colors must be identified by name and by vendor brand or a universal designation).
- Two sets of brochures and/or color chips for each proposed color.
- A detailed schedule for completion of the treatment.
- A procedure to ensure proper treatment maintenance for the life of the project.

Until the Applicant receives notification of approval of the Surface Treatment Plan by the BLM, the Applicant shall not specify to the vendors the treatment of any buildings or structures treated during manufacture or perform the final treatment on any buildings or structures treated on site. Additionally, construction activities shall not start until the BLM's approval of the plan has been received.

Within 14 days following the completion of treatment on any facility component, the Applicant shall notify the BLM that the component (array, structure, or building) is ready for inspection.

**MM VR-5** **Screening Vegetation Buffer**. The Applicant shall maintain a minimum 200-foot wide undisturbed, naturally vegetated buffer along Kaiser Road where the solar array would be adjacent to the road. The purpose of the buffer is to provide adequate vegetative screening of the low-profile panel arrays and partial screening of the high-profile arrays. The minimum 200-foot width of the buffer is necessary given the relatively low density of natural vegetation in this landscape. Although the buffer may not completely screen the Project site from view, the intent is to provide sufficient screening to enable only intermittent views of the arrays, thus reducing the prominence of structural contrast.

No fewer than 30 days prior to the start of construction, the Applicant shall provide to the BLM for review a draft Screening Plan that illustrates the undisturbed area. Following the BLM's review and comment period, and no fewer than 15 days prior to the start of construction, the Applicant shall provide the final Screening Plan to the BLM.

The following mitigation measure shall be implemented to reduce the adverse effects of night lighting (skyglow, glare, light trespass, light clutter) on the regional Dark Sky resource.

**MM VR-6** **Night Lighting Control.** Due to the project's location within a nationally significant Dark Sky resource area, night lighting is to be avoided where possible and minimized under all circumstances. To accomplish this, the Applicant shall prepare a Night Lighting Management Plan that incorporates the following general principles and specifications.

- Always-on security lighting is to be limited to one low-wattage, fully shielded, full cutoff light fixture at the main entrance to the facility. All other security lighting is to be motion activated only through the use of passive infrared sensors and controlled as specific zones such that only targeted areas are illuminated. No other lighting is to be utilized on a nightly basis when the facility is not occupied.

- Lighted nighttime maintenance is to be minimized or avoided as a routine practice and should only occur during emergencies. In particular, night-lighted maintenance activities shall be avoided during primary Dark Sky hours, meaning no maintenance lighting shall be used later than two hours after sunset and no earlier than two hours before sunrise.
- If a nighttime maintenance activity is anticipated to be necessary, the scheduling of that activity must be coordinated with the Joshua Tree National Park Night Sky Program Manager to ensure that the nighttime maintenance activity does not occur during a scheduled Night Sky Program.
- Under all circumstances, the use of night lighting is to be absolutely minimized.

Consistent with safety and security considerations, the Applicant shall design and install all permanent exterior lighting and all temporary construction lighting such that: a) lamps and reflectors are not visible from beyond the solar farm site including any off-site security buffer areas; b) lighting shall not cause excessive reflected glare; c) direct lighting shall not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which shall be an on-demand, audio-visual warning system that is triggered by radar technology); d) illumination of the Project and its immediate vicinity shall be minimized; e) skyglow caused by Project lighting will be avoided; and f) the Night Lighting Management Plan (see below) shall comply with local policies and ordinances. All permanent light sources shall be below 3,500 Kelvin color temperature (warm white) and shall be full cutoff fixtures.

No fewer than 30 days prior to the start of construction, the Applicant shall submit to the BLM and National Park Service (NPS) Joshua Tree National Park for review and approval a draft Night Lighting Management Plan. Following the BLM's and NPS' review of the draft Night Lighting Management Plan, and not fewer than 15 days prior to the start of construction, the Applicant shall submit to the BLM and NPS for review and approval, a final Night Lighting Management Plan. Construction activities shall not start until BLM's and NPS's approvals of the plan have been received. The Night Lighting Management Plan shall include the following.

- Specification that LPS or amber LED lighting will be emphasized, and that white lighting (metal halide) would: a) only be used when necessitated by specific work tasks; b) would not be used for dusk-to-dawn lighting; and c) would be less than 3500 Kelvin color temperature.
- Specifications and maps of all lamp locations, orientations, and intensities including security, roadway, and task lighting.
- Specifications of each light fixture and each light shield.
- Total estimated outdoor lighting footprint expressed as lumens or lumens per acre.

- Detailed list of anticipated circumstances and activities that would require night lighting including the expected frequency of the activity, the duration of the activity, and the expected amount of lighting that would be necessary for that activity.
- Definition of the threshold for substantial contribution to light pollution in Joshua Tree National Park, in coordination with the Night Sky Program Manager (see below).
- Specifications on the use of portable truck-mounted lighting.
- Lighting design shall consider setbacks of Project features from the Project boundary to help satisfy the lighting mitigation requirements.
- Light fixtures that could be visible from beyond the Project boundary shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the Project boundary, including security lighting.
- Specification of motion sensors and other controls to be used, especially for security lighting such that lights operate only when the area is occupied.
- Surface treatment specification that will be employed to minimize glare and skyglow.
- Results of a Lumen Analysis (based on final lighting plans), in consultation with the NPS Night Sky Program Manager (Chad Moore – [970] 491-3700), in order to determine the extent of night lighting exposures on the surrounding NPS lands. If the lighting exposure on NPS lands exceeds the allowable threshold (which is to be determined in consultation with the NPS Night Sky Program Manager), additional control measures shall be instituted to reduce the lighting exposures to levels below the action threshold.
- Documentation that the necessary coordination with the NPS Night Sky Program Manager has occurred.

### *Residual Impacts and Unavoidable Adverse Effects*

**Land scarring and vegetation clearance.** It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual effects associated with land scarring and vegetation clearance from Alternative 4 would remain for many years given the difficulty of successful revegetation in an arid environment. This would result in an unavoidable, long-term, adverse effect to visual resources.

**Structural visual contrast.** It is expected that, given the scale of the solar facility and the availability of considerable visual access to the Alternative 4 area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effects associated with introduced visual contrast from installation of Alternative 4 would remain for the life of the project. This would result in an unavoidable, long-term, adverse effect to visual resources.

**Adverse effect on scenic vistas.** It is expected that, given the scale of Alternative 4 and the availability of elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effect associated with the prominence of Alternative 4 and the introduction of industrial character and structural visual contrast to the field of view from backcountry scenic vistas would still result in substantial adverse visual effects. This would result in an unavoidable, long-term adverse effect to visual resources.

**Inconsistency with public policy.** Although the levels of change caused by Alternative 4 would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1.

### 4.19.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA) as shown on Figure 2-9, Alternative 5: Solar Project Excluding WHMA.

#### *Construction*

Construction effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of construction effects.

#### *Operation and Maintenance*

Operation and maintenance effects for this alternative would essentially be the same as for Alternative 4. There would be no discernible difference between Alternative 5 and Alternative 4 when viewed from any of the KOPs. Therefore, the KOP analyses, contrast ratings, and conclusions presented for Alternative 4 are applicable to Alternative 5. The reader is referred to Section 4.19.6 for a discussion of operation and maintenance effects that would be experienced under both Alternative 4 and Alternative 5.

#### *Decommissioning*

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

#### *Mitigation Measures*

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 5. The reader is referred to Section 4.19.6 for a complete description of these measures.

#### *Residual Impacts and Unavoidable Adverse Effects*

The residual impacts and unavoidable adverse effects of Alternative 5 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

### 4.19.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel and a small portion of the northern parcel that contains a sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project.

*__Construction__*

Construction effects for this alternative would be the same as described for Alternative 4 above. The reader is referred to Section 4.19.6 for a discussion of construction effects.

*__Operation and Maintenance__*

Operation and maintenance effects for this alternative would essentially be the same as for Alternative 4. Therefore, the KOP analyses, contrast ratings, and conclusions presented for Alternative 4 are applicable to Alternative 6. The reader is referred to Section 4.19.6 for a discussion of operation and maintenance effects that would be experienced under both Alternative 4 and Alternative 6. The only location(s) from which a noticeable difference between Alternative 4 and Alternative 6 would be perceived would be from portions of Kaiser Road. With the elimination of the smaller southern development area immediately adjacent to Kaiser Road, the solar facility would have the potential to become noticeably less visible to travelers on Kaiser Road. Specifically, the key to minimizing visibility of the low profile solar arrays is to maintain a vegetation screening buffer of sufficient depth between the solar facility and the at-grade viewing locations. By eliminating the (southern) development area closest to viewers on Kaiser Road, it should be easier to maintain an adequate screening buffer (of at least 200 feet) for the project overall, as required in Mitigation Measure VR-5. As a result, Alternative 6 would have fewer visual impacts relative to either Alternative 4 or Alternative 5. See also the relevant discussion of linear viewpoint effects in Section 3.19.1 and 4.19.6.

*__Decommissioning__*

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

*__Mitigation Measures__*

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 6. The reader is referred to Section 4.19.6 for a complete description of these measures.

*__Residual Impacts and Unavoidable Adverse Effects__*

The residual effects and unavoidable adverse effects of Alternative 6 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

### 4.19.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6, which is to say the same location and boundaries as Alternative 4 except that it would exclude the 155-acre southwestern parcel and a small portion of the northern parcel that contains a sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

### *Construction*

Construction effects for this alternative would be the same as described for Alternative 4 above. The reader is referred to Section 4.19.6 for a discussion of construction effects.

### *Operation and Maintenance*

An analysis of operation and maintenance effects was conducted for the view areas represented by KOPs 1A, 3A, and 8A (Figure 3.19-3), which were selected for in-depth visual analysis. The results of the effect analysis are discussed below by KOP and presented in the Visual Analysis Summary Table included as Appendix G-2. Contrast Rating Data Sheets are provided in Appendix G-4.

#### *Effects Contexts for Joshua Tree Wilderness and National Park and Desert Lily Sanctuary ACEC*

The effects contexts for Joshua Tree Wilderness and National Park and Desert Lily Sanctuary ACEC would be the same for this alternative as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of those effects.

#### *KOP 1A – Joshua Tree Wilderness – Eagle Mountains*

Figure 4.19-1A presents the existing view from KOP 1/1A in Joshua Tree Wilderness. The view is to the south from a low ridge at the northeast extent of the Eagle Mountains at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley backdropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. Figure 4.19-1C presents a visual simulation that depicts the addition of Alternative 7. As shown in the simulation, Alternative 7 would appear relatively small in scale compared to the panoramic landscape and would result in the introduction of a noticeable horizontal, built feature that, at an approximately eight-mile viewing distance, would appear as a low, narrow, variably-colored, horizontal band along the valley floor. Although Alternative 7 would be centrally located in the field of view from KOP 1A, the solar facility would not be perceived as a prominent feature in the landscape when viewed from these more distant, lower elevation viewpoints within Joshua Tree Wilderness (and National Park), as represented by KOP 1A. View impairment of the valley floor or other background landforms and natural features would be minimal. Although the view from this and similar distant view locations would be static, offering extended view durations, these views also have the potential to be partially obscured by poor atmospheric conditions such as haze.

The noticeable low horizontal form and line of the solar farm and fairly indistinct vertical structural elements of the transmission structures would result in weak degrees of structural visual contrast for form and texture. For line and color, the resulting visual contrast would be weak-to-moderate (relative to the natural character of the existing landscape). The most notable characteristic of the development would be the variable color contrast resulting from the reflection of light off the solar panels. The resulting overall visual change caused by Alternative 7 would be low and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1A and other similar, more distant, lower elevation vantagepoints in Joshua Tree Wilderness and National Park. Although the resulting visual effect would be adverse (see discussion below under Section 4.19.16 CEQA Considerations), the low level of change would be allowed under the Interim VRM Class IV management objective. Furthermore, Alternative 7 would retain the existing character of the landscape though it may attract the attention of the casual observer. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment).

### *KOP 3A – Kaiser Road in the Immediate Project Vicinity*

There are numerous viewing opportunities of Alternative 7 along Kaiser Road. Some are in close proximity, and some are more distant. Some are with unobstructed views, and others are partially or completely obscured by roadside and intervening vegetation. Project facilities within the primary cone of vision of travelers on Kaiser Road would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for shorter view durations. KOP 3A represents a compromise in possible views along Kaiser Road in terms of viewing proximity, angle, and duration and is representative of views along those portions of Kaiser Road where views are only partially obstructed by vegetation (and mostly unobstructed). These areas are shown in orange in Figure 3.19-2 and include approximately 1.5 miles of northbound Kaiser Road (out of six miles of potential Project views) and 4.7 miles of southbound Kaiser Road (out of 4.7 miles of potential solar facility views). Farther south on Kaiser Road, in the vicinity of Lake Tamarisk, views of the solar facility would be either substantially or completely screened by intervening vegetation. The reader is referred to Section 3.19.1 and 4.19.6 for additional discussion of the linear viewpoint analysis for Kaiser Road, which also applies to Alternative 7, even with the difference in panel height between Alternative 7 and the other solar facility action alternatives.

Figure 4.19-3C presents the existing view to the northeast from KOP 3A on Kaiser Road in the immediate solar facility vicinity. The view encompasses the open expanse of a central portion of the northern Chuckwalla Valley backdropped by the Coxcomb Mountains. Figure 4.19-3D presents a visual simulation that depicts a portion of the Alternative 7 solar facility. As shown in the simulation, Alternative 7 would result in the introduction of visually prominent built structures into a foreground/middleground landscape generally lacking similar built features of industrial or technological character. The solar facility would appear as prominent horizontal and geometric features with prominent and distinct horizontal lines associated with specific panel arrays, development units, and vegetative demarcations from graded surfaces. The resulting form contrast of the solar panels would be moderate-to-strong relative to the natural character of the existing landscape with its rugged horizontal to angular forms and irregular lines. The apparent color of the solar panels would vary depending on viewpoint location, view orientation, sun angle, time of day, and meteorological conditions. Apparent color could range from bluish and bluish-gray hues (as shown in the simulation), to brighter light grays, to medium dark gray, and even black when directly facing a panel array and viewing north. The various colors would result in moderate-to-strong degrees of visual contrast relative to the lighter earthtones and muted greens of the existing landscape. The prominent line contrast of the solar panels would be strong. The smooth industrial surfaces and textures of the solar arrays would appear out of place in this rugged desert landscape with the existing matte to granular textures of rock, soil, and vegetation. The resulting texture contrast would be moderate. Also, the solar arrays would cause partial view blockage of the Chuckwalla Valley floor. These contrasts would substantially degrade the existing visual character and quality of the Alternative 7 site and its surrounding landscape.

The solar facility with its prominent horizontal geometric structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb Mountains). Also, the solar farm would constitute a co-dominant to dominant feature in the landscape depending on proximity to the development area, view orientation, and presence or absence of intervening vegetation, thus attracting the attention of the casual observer. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 3A in Appendix G-4).

Although the resulting visual effect would be substantial when viewed from KOP 3A and other at-grade vantage points in relatively close proximity to the solar facility site (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be reduced somewhat with the effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), VR-4 (Surface Treatment), and VR-5 (Vegetative Screening Buffer). Also, effective implementation of Mitigation Measure VR-6 (Night Lighting Control) would be essential to ensure that additional night sky light pollution does not occur from implementation of Alternative 7. Of particular importance is Mitigation Measure VR-5, which calls for the maintenance of a minimum 200-foot wide undisturbed, naturally vegetated buffer along the project perimeters and nearby roadsides. The purpose of the buffer is to provide some vegetative screening of the high-profile panel arrays. The minimum 200-foot width of the buffer is necessary given the scarcity of natural vegetation in this landscape. Although the buffer would not completely screen the project site from view, the intent is to provide sufficient screening to reduce visibility of the arrays, thus, reducing the prominence of structural contrast. At present, the more extended view durations of the Alternative 7 site from Kaiser Road can range from approximately 30 seconds to approximately 90 seconds. The vegetative buffer and screening vegetation would somewhat break up the visual mass of the alternative, thereby reducing the view durations and limiting the visual access to the Alternative 7 site.

#### *KOP 8A – Westbound I-10 East of Desert Center*

As discussed above in Section 3.19.1, there are numerous viewing opportunities of Alternative 7 along westbound and eastbound I-10, which experience variable project visibility due to intervening vegetation and structures, changes in view orientation, and the extent to which the solar facility appears within the primary cone of vision of travelers on I-10. As previously noted, a substantial portion of the approximately 9.3 miles of solar facility views along westbound I-10 experience unobstructed views of the Alternative 7 solar facility (see Figure 3.19-2). Project facilities that are visible within the primary cone of vision of travelers on I-10 would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for shorter view durations. While different viewpoints will experience greater or lesser visual contrast, KOP 8A represents a reasonable compromise in possible views along eastbound I-10 in terms of viewing proximity, duration, and angle of view.

Figure 4.19-8C presents the existing view to the northwest from KOP 8A on westbound I-10, north of the proposed Red Bluff Substation site, approximately 5.75 miles east of Desert Center, and approximately 0.2 mile east of the Alternative E span of I-10. The view captures a central portion of the generally natural appearing northern Chuckwalla Valley north of I-10 and backdropped by the Eagle and Coxcomb mountains. Figure 4.19-8D presents a visual simulation that depicts the Alternative 7 solar facility. Given the openness of the terrain and the availability of unobstructed sightlines, travelers on I-10 would be afforded extended viewing durations (particularly westbound travelers) of the solar facility. Adverse atmospheric conditions (e.g., haze) would somewhat impair views of the solar facility.

As shown in the simulation, the solar facility would appear as a relatively prominent horizontal band along the valley floor. Depending on time of day, orientation of the tracking solar panels, and characteristics of the reflected sky due to atmospheric/weather conditions, light reflecting off the solar panels would cause varying color contrasts with the surrounding earthtone landscape that consists of a blend of greens and tans for vegetation and tans for desert soils that transition to lavender and bluish hues at distance. Lighter reflected colors would create weak color contrast with the light colored sky. These color contrasts would be noticeable from I-10 but would be somewhat tempered by the approximately 6.75- to 7-mile viewing distance. The more proximal gen-tie transmission line would appear as numerous and visually prominent vertical (tubular steel poles) and curvilinear (conductors) built structures in a landscape generally lacking similar built features of industrial or technological character. The vertical forms of the tubular steel poles would contrast with the prominent horizontal nature of the foreground/middleground valley floor. The light gray of the transmission structures would create moderate visual contrast with the earthtone soil and vegetation colors and weak visual contrast against the lighter sky. To the extent it is perceived, the smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. However, with the greater viewing distances experienced from I-10 and presented in the simulation, the resulting texture contrast would be weak.

As a result, Alternative 7 facilities would cause moderate-to-strong levels of form and line contrast relative to the natural character of the existing landscape. Color contrast would be moderate, and texture contrast would be weak. Also, the solar array would cause noticeable view blockage of the background Chuckwalla Valley floor and Eagle and Coxcomb mountains. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape causing a moderate-to-high level of change. However, the resulting moderate-to-high level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 8A in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 8A and other locations along I-10 (see discussion below under Section 4.19.16 CEQA Considerations), **Mitigation Measures VR-3** (Project Design to Reduce Visual Contrast) and **VR-4** (Surface Treatment) are required to reduce the visual impact to the extent possible.

### *Linear Viewpoint Analysis*

The linear viewpoint analysis for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of linear viewpoints.

### ***Decommissioning***

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 7. The reader is referred to Section 4.19.6 for a complete description of these measures.

***Residual Impacts and Unavoidable Adverse Effects***

The residual effects and unavoidable adverse effects of Alternative 7 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

### 4.19.10 Alternative A – No Gen-Tie

Under Alternative A, the ROW for the proposed gen-tie line would not be approved by the BLM. As a result, no gen-tie would be constructed and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no gen-tie line approved for the proposed project, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no adverse visual effects associated with the proposed project would occur.

### 4.19.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for the Desert Sunlight solar project by sharing its approved transmission line ROW and infrastructure. However, for the purposes of this EIS, the environmental baseline, also known as the "affected environment," is the existing physical environment in the Chuckwalla Valley, which does yet include any facilities associated with the Desert Sunlight gen-tie as those have not yet been constructed. Therefore, any analysis of the impacts associated with Alternative B relative to the environmental baseline would require an analysis of the impacts of constructing a unique transmission line.

***Construction***

Construction of Alternative B would cause temporary visual effects due to the presence of equipment, materials, and workforce. These effects would occur throughout the ROW. Construction would involve the use of cranes, heavy construction equipment, vehicles, and temporary laydown/staging areas, and would include site clearing, construction of the support structures, conductor stringing, and site cleanup and restoration of temporary disturbance areas. All of these activities would impact the project vicinity. Visible traffic would also increase along Kaiser Road, SR-177, and I-10. Construction activities have the potential to generate dust clouds, which can be visually distracting. To address those impacts disturbed soils would have to be controlled properly as required in Mitigation Measure VR-1 in order to reduce dust generation. Construction activities would be visible from Kaiser Road, SR-177, I-10, BLM recreational access roads, the community of Lake Tamarisk, Desert Lily Sanctuary ACEC, Joshua Tree Wilderness in Joshua Tree National Park, and the Chuckwalla Mountains Wilderness, and as a result would impact visual resources from those vantage points. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects when viewed from the Alternative B vicinity and KOPs 5, 6, and 8. Much of the area of disturbed soil surfaces (characterized by high color, line and texture contrasts) associated with construction would remain visible from the various viewing vantage points for some period after the conclusion of construction activities because revegetation of areas in the desert region where the gen-tie would be located is difficult and generally of limited success. These longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

In addition to the direct visual resource impacts, the construction of Alternative B would also result in one indirect visual effect, which is an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project-related traffic, the increased traffic would be noticed by the casual observer; therefore, the resulting visual effect would not be substantial.

### ***Operation and Maintenance***

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 5 (Figure 3.19-3), which was selected for in-depth visual analysis because it provides a foreground view of Alternative B from Kaiser Road, the nearest public vantage point that also can be considered representative of views from the Lake Tamarisk residential development. None of the other seven representative KOPs would service both viewing populations (travelers on Kaiser Road and residents at Lake Tamarisk). The results of the impact analysis are discussed below and are presented in the Visual Analysis Summary table included as Appendix G-2. A contrast rating analysis was conducted at KOP 5 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable VRM class management objectives. The Contrast Rating Data Sheet is provided in Appendix G-4.

### *KOP 5 – Kaiser Road in the Immediate Project Vicinity*

Figure 4.19-5A presents the existing view to the northwest from KOP 5 on northbound Kaiser Road near the community of Lake Tamarisk. The view captures the open expanse of Chuckwalla Valley west of Kaiser Road. Figure 4.19-5B presents a visual simulation that depicts Alternative B, which would be situated in the immediate foreground within the primary cone of vision of both northbound and southbound travelers on Kaiser Road. As a result, travelers would be afforded extended viewing durations as the transmission line parallels the road. Given the close proximity and relatively large scale of the proposed facility, atmospheric conditions would have minimal to no effect on the viewing experience. Roadside vegetation would partially screen the more distant structures in the parallel view. Eventually, all structures would become visibly prominent as the structures pass into the immediate foreground of views.

As shown in the simulation, the Alternative B gen-tie line would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The forms of the tubular steel poles and curvilinear conductors within the foreground exhibit strong contrast arising from the horizontal nature and natural character of the foreground, but the contrasting qualities begin to dissipate in the background against the distant Eagle Mountains. The prominent vertical lines of the poles also contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, Kaiser Road, and background ridgelines. The resulting structural form and line contrast would be strong. The colors of the existing landscape are a blend of muted greens and tans for vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of Kaiser Road. The light gray of the transmission structures would create a moderate contrast against the light blue sky and green vegetation and diminishes to a low degree of contrast against the distant middleground and background colors. The overall color contrast would be moderate. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape resulting in weak-to-moderate texture contrast with the matte to granular textures of rock, soil, and vegetation. Also, the structures and conductors would cause partial view blockage of the Eagle Mountains and sky.

The Alternative B gen-tie line with its prominent linear, vertical, structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Eagle Mountains. Also, the transmission line would constitute a foreground co-dominant to dominant feature in the landscape depending on proximity to the gen-tie line, thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. Although the facilities would substantially degrade the existing visual character or quality of the surrounding landscape, the resulting high level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 5 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 5 and other foreground locations along Kaiser Road (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

### *Decommissioning*

After the end of this alternative's useful life, it would require decommissioning with the intent of returning the ROW to pre-project conditions. However, as of the date of this visual analysis, no Decommissioning Plan has been prepared. Short-term, deconstruction activities would result in visual impacts similar to gen-tie construction. Longer-term, even the complete removal of the transmission structures would leave a very prominent visual effect throughout the entire ROW due to the strong color and line contrast created between disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. However, Mitigation Measure VR-2 requires the Applicant to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

### *Mitigation Measures*

Mitigation Measures VR-1 through VR-6 would also apply to Alternative B. The reader is referred to Section 4.19.6 for a complete description of these measures.

### *Residual Impacts and Unavoidable Adverse Effects*

**Land scarring and vegetation clearance.** It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual impacts associated with land scarring and vegetation clearance would remain for several years given the difficulty of successful revegetation in an arid environment. This would result in an unavoidable, long-term, adverse effect to visual resources.

**Structural visual contrast.** It is expected that, given the scale of the transmission structures and the availability of considerable visual access to the project study area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual impacts associated with introduced visual contrast from installation of the transmission structures would remain for the life of the project. This would result in an unavoidable, long-term adverse effect to visual resources.

**Adverse effect on scenic vistas.** It is expected that the transmission structures would result in adverse though not substantial visual effects on the elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley given the substantial viewing distances to the transmission line. However, effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5 is still required to reduce the visual effect to the extent feasible.

**Inconsistency with public policy.** Although the levels of change caused by the transmission structures would be allowed under the Interim VRM Class IV management objective, they would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1.

### 4.19.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved Desert Sunlight Solar Farm gen-tie line and would be located on separate towers within the same, or a slightly larger, ROW. However, although the Desert Sunlight Solar Farm gen-tie has been approved, as of the commencement of analysis for this EIS, that gen-tie line has not been constructed. Therefore, the environmental baseline (affected environment) for Alternative C includes the existing physical state of the environment at the time of commencement of analysis (September, 2011), which does not include the Desert Sunlight Solar Farm gen-tie line.

### *Construction*

Construction effects for this alternative would be the same as described for Alternative B above. The reader is referred to Section 4.19.11 for a discussion of construction effects.

### *Operation and Maintenance*

Operation and maintenance effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of operation and maintenance effects.

***Decommissioning***

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative C. The reader is referred to Section 4.19.6 for a complete description of these measures.

***Residual Impacts and Unavoidable Adverse Effects***

The residual impacts and unavoidable adverse effects of Alternative C would be the same as for Alternative B. The reader is referred to Section 4.19-11 for a complete discussion of these effects.

### 4.19.13 Alternative D – Cross-Valley Alignment

From the area of the solar facility, Alternative D would cross Chuckwalla Valley in a southeasterly direction before converging on and then spanning I-10 to connect to the proposed Red Bluff Substation (see Figure 3.19-1).

***Construction***

Construction effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of construction effects.

***Operation and Maintenance***

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 6 (Figure 3.19-3), which was selected for in-depth visual analysis because it is the only KOP of the eight representative KOPs that provides a foreground view of Alternative D from I-10, the most highly-traveled road in the project study area. The results of the impact analysis are discussed below and presented in the Visual Analysis Summary table included as Appendix G-2. A contrast rating analysis was conducted at KOP 6 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable Interim VRM class management objectives. The Contrast Rating Data Sheet is provided in Appendix G-4.

***KOP 6 – Eastbound I-10 East of Desert Center***

Figure 4.19-6A presents the existing view to the northeast from KOP 6 on eastbound I-10, east of Desert Center and approximately 0.8 mile west of the Alternative D span of I-10. The view captures the open expanse of the northern Chuckwalla Valley north of I-10. Figure 4.19-6B presents a visual simulation that depicts Alternative D as it converges on I-10 and passes into the immediate foreground of views and within the primary cone of vision of both eastbound and westbound travelers on I-10. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations as the gen-tie line converges on, and spans, the freeway. Given the close proximity and relatively large scale of the gen-tie line, atmospheric conditions would have minimal to no effect on the viewing experience in the vicinity of the span.

As shown in the simulation, this alternative would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The form of the tubular steel poles and curvilinear conductors within the foreground exhibits strong contrast arising from the horizontal nature of the foreground/ middleground road corridor and valley floor. The prominent vertical lines of the poles also contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, I-10, and background ridgelines. The resulting structural form and line contrast would be strong. The colors of the existing landscape are a blend of muted greens and tans for vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of I-10. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The poles present a low degree of contrast compared to the foreground gray color of the freeway pavement. The overall color contrast would be weak-to-moderate. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. The resulting texture contrast would also be weak-to-moderate. Also, the structures and conductors would cause partial view blockage of the Palen Mountains and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

The transmission line with its prominent linear, vertical, structural forms and lines, and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged, and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Palen Mountains). Also, the transmission line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the transmission line), thus attracting the attention of the casual observer. The prominence of the proposed transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. However, the high level of change that would result would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 6 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 6 and other foreground locations along I-10 (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

### ***Decommissioning***

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

### ***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative D. The reader is referred to Section 4.19.6 for a complete description of these measures.

***Residual Impacts and Unavoidable Adverse Effects***

The residual impacts and unavoidable adverse effects of Alternative D would be the same as for Alternative B. The reader is referred to Section 4.19.11 for a complete discussion of these effects.

### 4.19.14 Alternative E – New Cross-Valley Alignment

From the area of the solar facility, Alternative E would cross Chuckwalla Valley in a southeasterly direction north of the Alternative D alignment before converging on and then spanning I-10 to connect to the proposed Red Bluff Substation (see Figure 3.19-3).

***Construction***

Construction effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of construction effects.

***Operation and Maintenance***

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 7 and KOP 8 (Figure 3.19-3), which were selected for in-depth visual analysis because these are the only representative KOPs (of the eight total KOPs) that provide views of Alternative E from the two most highly traveled road corridors (SR-177 and I-10 respectively) in the project study area. The results of the effects analysis are discussed below and presented in the Visual Analysis Summary table included as Appendix G-2. Contrast rating analyses were conducted at KOP 7 and KOP 8 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable Interim VRM class management objectives. The Contrast Rating Data Sheets are provided in Appendix G-4.

***KOP 7 – Northbound SR-177***

Figure 4.19-7A presents the existing view to the northeast from KOP 7 on northbound SR-177, approximately 0.3 mile southwest of the Alternative E span of SR-177. The view captures a central portion of the northern Chuckwalla Valley where it is bisected by Kaiser Road. The view is backdropped by the southeastern extent of the Coxcomb Mountains and the more distant Palen Mountains. Figure 4.19-7B presents a visual simulation that depicts the Alternative E gen-tie line as it converges on, and then spans, SR-177 passing into the immediate foreground of views and within the primary cone of vision of both northbound and southbound travelers on SR-177. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations as the transmission line converges on and spans the road. Given the close proximity and relatively large scale of the proposed facility, atmospheric conditions would have minimal to no effect on the viewing experience in the vicinity of the span, though roadside vegetation would partially screen the more distant structures on either side of the span.

As shown in the simulation, this alternative would result in the introduction of visually prominent built structures into a landscape generally lacking structures of similar scale and industrial or technological character. The form of the tubular steel poles and curvilinear conductors within the foreground exhibits moderate-to-strong contrast arising from the horizontal nature of the foreground/middleground road corridor and valley floor. The prominent vertical lines of the poles also cause a moderate degree of contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, SR-177, and background ridgelines. These form and line contrasts are somewhat moderated by the linear forms and vertical lines of an existing wood-pole utility line adjacent to SR-177. The colors of the existing landscape are a blend of muted greens and tans for vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of SR-177. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The poles present a weak degree of contrast compared to the foreground gray color of the road pavement. The overall color contrast would be weak to moderate. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. The resulting texture contrast would also be weak-to-moderate. Also, the structures and conductors would cause partial view blockage of the Coxcomb and Palen mountains and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

Alternative E with its prominent linear, vertical, structural forms and lines, and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged and coarse valley floor supporting irregular distributions of vegetation clumps and individuals, backdropped by the somewhat horizontal, yet, jagged and angular to rolling Coxcomb and Palen mountains). Also, the gen-tie line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the line), thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. Further, given the openness of the terrain and lack of substantial vegetation, the convergence on, and span of, SR-177 would be visible from considerable distance along SR-177 in both directions of travel. Thus, numerous transmission structures would be collectively visible within the primary cone of vision of travelers on SR-177 for an extended duration, which would contribute to the overall apparent prominence of this alternative as it passes through the viewshed visible from SR-177. However, the moderate-to-high level of change that would result would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 7 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 7 and other foreground locations along SR-177 (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

This viewpoint analysis is also applicable to the southern-most portion of the Desert Lily Sanctuary ACEC, which is located in close proximity to, and north of, the Alternative E alignment east of SR-177 (see Figure 3.19-1).

#### *KOP 8 – Westbound I-10 East of Desert Center*

Figure 4.19-8A presents the existing view to the north from KOP 8 on westbound I-10 north of the proposed Red Bluff Substation site, approximately 5.75 miles east of Desert Center and approximately 0.2 mile east of the Alternative E span of I-10. The view captures a central portion of the generally natural appearing northern Chuckwalla Valley north of I-10 and backdropped by the Coxcomb Mountains. Figure 4.19-8B presents a visual simulation that depicts the Alternative E gen-tie line as it crosses Chuckwalla Valley in a circuitous path before converging on, and then spanning, I-10. As the transmission line converges on I-10, it passes into the immediate foreground of views and within the primary cone of vision of both eastbound and westbound travelers on I-10. However, due to the west-northwest orientation of the direction of travel on westbound I-10, a majority of the transmission line route would be located within the primary cone of vision of westbound travelers. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations (particularly westbound travelers) as the transmission line traverses a central portion of Chuckwalla Valley in a circuitous path and then converges on and spans the highway. Given the close proximity and relatively large scale of the proposed facility, the impairment of structure visibility due to adverse atmospheric conditions (e.g., haze) would be limited to only the most distant structures.

As shown in the simulation, this alternative would result in the introduction of numerous visually noticeable, prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The forms of the tubular steel poles and curvilinear conductors within the foreground exhibits moderate-to-strong contrast arising from the horizontal nature of the foreground/middleground valley floor. The prominent vertical lines of the poles also contrast with the general horizontal and irregular lines in the landscape associated with the valley floor and background ridgelines. The resulting structural form and line contrasts would be moderate-to-strong, which would increase with closer proximity to the viewer and diminish with increasing distance from the viewer. The colors of the existing landscape are a blend of greens and tans for vegetation and tans for desert soils, that transition to lavender and bluish hues at distance. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. However, with the greater viewing distances presented in the simulation, the resulting texture contrast would be weak. Also, the structures and conductors would cause partial view blockage of the background Chuckwalla Valley floor, Coxcomb Mountains, and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

The transmission line with its prominent linear-vertical and curvilinear structural forms and lines would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged, and coarse valley floor supporting irregular distributions of vegetation clumps and individuals, and backdropped by the jagged and angular Coxcomb Mountains). Also, the gen-tie line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the line – the closer the viewer to the span of I-10, the more prominent the line becomes), thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon, which would be particularly noticeable on closer approach to the I-10 span. However, the moderate-to-high level of change that would result would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 8 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 8 and other foreground locations along I-10 (see discussion below under Section 4.19.16 CEQA

Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

***Decommissioning***

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

***Mitigation Measures***

Mitigation Measures VR-1 through VR-6 would also apply to Alternative E. The reader is referred to Section 4.19.6 for a complete description of these measures.

***Residual Impacts and Unavoidable Adverse Effects***

The residual impacts and unavoidable adverse effects of Alternative E would be the same as for Alternative B. The reader is referred to Section 4.19-11 for a complete discussion of these effects.

### 4.19.15 Cumulative Effects

Cumulative effects to visual resources would occur where DHSP facilities or activities would occupy the same field of view as other built facilities or impacted landscapes, and an adverse change in the visible landscape character is perceived. These are often categorized as local viewshed effects. A cumulative effect could also occur if a viewer perceives that the general visual quality or landscape character of a localized or regional area (I-10 corridor) is diminished by the proliferation of visible similar structures or construction effects, even if the changes are not within the same field of view as existing (or future) structures or facilities. The result is a perceived "industrialization" or "urbanization" of the existing rural or undeveloped landscape character. These are often categorized as regional viewshed effects.

There is the potential for substantial future development along the I-10 corridor between the Coachella Valley and Blythe. A list of the existing and reasonably foreseeable cumulative projects is provided in Tables 4.1-1 and 4.1-2 and shown on Figures 4.1-1. A subset consisting of 26 of those projects would combine with DHSP to cause both local and regional viewshed cumulative effects. Those cumulative projects are identified in Table 4.19-1 below.

**Table 4.19-1 Visual Resources Cumulative Projects**

| Existing Projects | | | |
|---|---|---|---|
| **Local Viewshed Cumulative Projects** | | **Regional Viewshed Cumulative Projects** | |
| **#** | **Name** | **#** | **Name** |
| 1 | Interstate 10 | 5 | Blythe Energy Project |
| 4 | Devers-Palo Verde No. 1 500 kV T-Line | 11 | Blythe PV Project |
| 7 | Eagle Mountain Pumping Plant | | |
| 9 | Kaiser Mine | | |
| 10 | Blythe Energy Project T-Line | | |

**Table 4.19-1 Visual Resources Cumulative Projects**

| | | | |
|---|---|---|---|
| 12 | Chuckwalla Valley Raceway | | |
| **Reasonably Foreseeable Projects** | | | |
| **Local Viewshed Cumulative Projects** | | **Regional Viewshed Cumulative Projects** | |
| **#** | **Name** | **#** | **Name** |
| D | Devers-Palo Verde No. 2 500 kV T-Line | G | Blythe Energy Project II |
| F | Desert Southwest T-Line | J | Blythe Solar Power Project |
| H | Eagle Mountain Pumped Storage Project | K | NextEra (FPL) McCoy Solar Project |
| I | Palen Solar Energy Project | M | Genesis Solar Energy Project |
| R | Desert Sunlight Solar Project | P | Blythe Airport Solar I Project |
| S | SCE Red Bluff Substation | Y | Wiley's Well Telecom Tower |
| T | Desert Center 50 Solar Project | HH | BLM Solar Energy Zones |
| U | Sol Orchard Solar Project | | |
| X | Eagle Mountain Landfill Project | | |
| Z | Eagle Mountain Wind Project Met Towers | | |
| CC | Silverado Power I, II, III | | |

### *Geographic Scope*

Cumulative effects to visual resources could occur if implementation of the DHSP would combine with those of other local or regional projects. DHSP is potentially associated with two types of cumulative effects:

- **Local cumulative effects** within the immediate project viewshed (local projects typically within 15 miles of DHSP) including existing and reasonably foreseeable future projects in the northern Chuckwalla Valley; and
- **Regional cumulative effects** beyond the immediate project viewshed, which would include the existing and reasonably foreseeable future solar and other energy and development projects along the I-10 corridor between the Coachella Valley and Blythe. These projects, while not located within the same field of view as DHSP would, in combination with DHSP, contribute to a sense of industrialization or urbanization of the existing landscape character as viewed by travelers along I-10.

### *Cumulative Effects Analysis*

There would be no cumulative visual resources effects under the No Action/No Project Alternatives (Alternatives 1, 3, or A) because there would be no ROW grant for development of the solar facility and gen-tie line. Alternative 2 (No Project Alternative [with Plan Amendment to Find the Site Suitable for Solar]) could contribute to cumulative visual resources effects because the CDCA Plan could be amended to allow another solar development of the site. However, any future proposals for use of the DHSP site would be subject to separate environmental analysis, and the potential contribution of such a future project is speculative at this juncture. The remainder of this section addresses the Action Alternatives: Alternatives 4, 5, 6, and 7 and gen-tie alignment Alternatives B through E.

### *Existing Cumulative Projects*

This section identifies the existing projects and actions that have affected and will continue to affect landscape character in the local and regional cumulative study areas described above. There has been relatively limited development and/or industrialization of the landscape within the DHSP's viewshed (extending out approximately 15 miles to the limit of the background distance zone). Table 4.19-1 above identifies six existing cumulative projects within a reasonable viewing distance of DHSP (locally cumulative projects) including project numbers 1, 4, 7, 9, 10, and 12 (map identification numbers on Figure 4.1-1).

All of the projects share at least one visual characteristic with DHSP. I-10 appears as a long, linear, horizontal feature covering the valley floor. The solar facility action alternatives would also appear as a low, horizontal, linear feature covering the valley floor when viewed at distance. The Devers-Palo Verde No. 1 and Blythe Energy Project transmission lines would share similar industrial character and vertical linear forms with the DHSP gen-tie line. The Eagle Mountain Pumping Plant will share some of the complex industrial characteristics as would be apparent with the solar facility and substation. The Kaiser Mine and Chuckwalla Valley Raceway both exhibit ground disturbance and scarring that would result in visual contrast similar to what would be apparent with implementation of DHSP. All of these projects would be visible within the same field of view as DHSP when viewed from a variety of viewpoints. All of these projects, in conjunction with DHSP, contribute to the conversion of natural desert landscapes to landscapes that substantially contrast with the natural character of the desert landscape (complex industrial and/or geometric forms and lines, and surface textures and colors that are not apparent in natural, undisturbed desert landscapes). Therefore, there would be combined effects on visual resources from the combination of DHSP and the six locally cumulative projects, both individually (each project plus DHSP) and collectively (all six projects).

Additionally, the two existing regionally cumulative energy generation projects (#5 - Blythe Energy Project and #11 – Blythe PV Project) near the City of Blythe also contribute to a cumulative sense of urbanization and industrialization along the I-10 corridor. Therefore, DHSP in conjunction with these two existing projects, individually and collectively, would contribute to cumulative effects on the visual resources and landscapes along the I-10 corridor.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C.

### *Reasonably Foreseeable Cumulative Projects*

This section identifies the reasonably foreseeable projects and actions that would affect landscape character in the local and regional cumulative study areas described above.

*Local Foreseeable Cumulative Projects*

**Operation and Maintenance Impacts.** Table 4.19-1 above identifies 11 foreseeable local cumulative projects within a reasonable viewing distance of DHSP including project letters: D, F, H, I, R, S, T, U, X, Z, and CC (map identification letters on Figure 4.1-1). Of the 11 local projects, 10 are energy projects and one is a landfill project. Most of these projects have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described in Table 4.19-1, their effects were considered in the cumulative effects analyses in this EIS.

The 10 local foreseeable cumulative energy projects would all exhibit similar complex industrial characteristics, structural visual contrast (form, line, color, and texture), structural prominence, and view blockage of existing landscape features comparable to DHSP (though there would be some differences depending on the type of project and viewing location). Figures 4.19-2A, 4.19-2B, and 4.19-2C are examples to show the cumulative effect of the DHSP and the Desert Sunlight Solar Farm project, which is the closest cumulative project and is located immediately adjacent and to the north of DHSP. Figure 4.19-2A presents the existing view of the northern Chuckwalla Valley from KOP 2 on the western flank of the Coxcomb Mountains. This elevated viewpoint provides an elevated perspective of the valley north of I-10. Figure 4.19-2B presents a simulation of Alternative 4, which is located approximately 3.5 miles to the southwest. The solar panel arrays are shown facing (tilted) to the south, away from the viewer at KOP 2, and would appear as a spatially prominent and central series of geometric patterns on the basin floor, which would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape. Figure 4.19-2C presents a cumulative simulation of Alternative 4 with the Desert Sunlight solar project, at a viewing distance of 2.5 to 3.5 miles to the southwest. Again, the view is toward the back of the solar fields with the solar panels facing toward the south, away from the KOP 2 viewing location. As shown in the simulation, the cumulative visual effect of the two projects would be substantially greater with a larger portion of the valley being converted from a natural desert valley landscape to that of an industrial energy complex that appears, at this viewing distance, as a spatially prominent series of geometric patterns that do not replicate the form, line, color, or texture of the existing desert landscape. The cumulative visual impact of DHSP and all 10 of the energy projects would be considerably greater (in terms of visual contrast, industrial character, structural prominence, and view blockage) than the cumulative visual impact of just DHSP and Desert Sunlight as described earlier in this paragraph.

The landfill project would exhibit substantial visual contrast associated with land modification and scarring and the associated color contrast of disturbed soils relative to the surrounding terrain characteristics. The landfill project would also exhibit some similar industrial characteristics compared to DHSP and the 10 cumulative energy projects.

These 11 projects and DHSP, individually and collectively, would visually transform a substantial portion of the greater Chuckwalla Valley (see Figure 4.1-1) by contributing to the conversion of natural desert landscapes to landscapes with substantial industrial, technological, and modified land characteristics. The resulting visual effects would be cumulatively adverse.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. Figure 4.19-5C shows a cumulative effects simulation of Alternative C and the Desert Sunlight Solar Farm approved gen-tie in the same ROW along Kaiser Road.

**Construction Impacts.** If construction at any or all of the 11 local foreseeable cumulative project locations were to occur at the same time as, or consecutively before or after, construction of DHSP, construction activities, equipment and night lighting from these sites would combine with similar activities and equipment from the DHSP site. Construction of DHSP and the other cumulative projects in the vicinity would lead to the continued presence of construction equipment on roads and in the landscape in the local project region for several years and cause a cumulatively adverse. The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

*Regional Foreseeable Cumulative Projects*

**Operation and Maintenance Impacts.** Table 4.19-1 above identifies seven foreseeable regional cumulative projects including six energy projects (G, J, K, M, P, and HH – map identification letters on Figure 4.1-1) and one telecommunications tower project (Y) located beyond the immediate viewshed of DHSP. These projects would all exhibit similar complex industrial characteristics, structural visual contrast (form, line, color, and texture), structural prominence, and view blockage of existing landscape features comparable to components of DHSP (though there would be some differences depending on the type of project and viewing location). These seven foreseeable regional cumulative projects and DHSP, individually and collectively, would visually transform a substantial portion of the I-10 corridor landscape by contributing to the conversion of natural desert landscapes to landscapes with prominent industrial character, prominent complex and geometric forms and lines, and surface colors and textures not typically found in a natural desert landscape. All of these projects would also typically cause land scarring and soil disturbance that result in long-term soil color contrasts and unnatural vegetative lines. New structures would cause view blockage or impairment of higher quality background features (valley floor, mountain ridges, and sky). As a result, DHSP and the regional cumulative projects combined would result in a **perceived** increase in industrialization of the landscape, diminution of visual quality, and increase in visual contrast visible in the I-10 corridor between the Coachella Valley and Blythe even though the regional cumulative projects would not be visible in the same field of view as DHSP. The resulting visual impact would be cumulatively adverse.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. Figure 4.19-5C shows a cumulative effects simulation of Alternative C and the Desert Sunlight Solar Farm approved gen-tie in the same ROW along Kaiser Road.

**Construction Impacts.** If construction at any or all of the seven foreseeable regional cumulative project locations were to occur at the same time as, or consecutively before or after, construction of DHSP, construction activities, equipment and night lighting from these sites would combine with similar activities and equipment from the DHSP site. Construction of DHSP and the other regional cumulative projects would lead to the continued presence of construction equipment on roads and in the landscape in the I-10 corridor for several years and cause a cumulatively adverse visual effect.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

*Decommissioning*

Cumulative effects associated with decommissioning of DHSP would include the removal and disposal of solar arrays, transmission structures, other electrical components, and ancillary facilities, as well as the removal of all underground infrastructure to three feet below the ground surface. Short-term, deconstruction activities would result in visual impacts similar to project construction. Restoration of the DHSP site would include returning the area as close as reasonably possible to pre-construction conditions suitable for current adjacent land. However, following removal of the facilities, strong color contrasts associated with vegetation removal and disturbed soils would remain. In addition, revegetation in a desert region is difficult and generally is of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the Applicant to achieve site restoration to the extent feasible for the DHSP, pursuant to a Decommissioning Plan approved by the BLM. It is anticipated that other reasonably foreseeable future projects would be subject to such requirements.

### 4.19.16 CEQA Considerations

This section is included in this EIS and Draft Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

***CEQA Significance Criteria***

The criteria used to assess the significance of visual impacts resulting from a project take into consideration the factors described in the previous section, as well as federal, state, and local policies and guidelines pertaining to visual resources. Appendix G of the CEQA Guidelines identifies four circumstances that can lead to a determination of significant visual impact. These have been adapted as set forth below for the analysis that follows.

V-1 Project construction or the long-term presence of Project components would cause a substantial effect on a scenic vista.

V-2 Project construction or the long-term presence of Project components would substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within view of a State Scenic Highway.

V-3 Project construction or the long-term presence of Project components would substantially degrade the existing visual character or quality of the site and its surrounding landscape. [Note: Substantial degradation results from higher levels of visual contrast, project dominance, and view blockage. Visual contrast relates to spatial characteristics, visual scale, texture, form, line, and color.]

V-4 Project construction or the long-term presence of a project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be hazardous to motorists or pedestrians.

Three additional criteria that can lead to a determination of significant visual impact include the following.

V-5 The presence of DHSP would result in a long-term (greater than five years) inconsistency with established (or interim) BLM VRM class objectives (applies only to public lands administered by the BLM). This would typically occur where a landscape with a relatively high visual quality and viewer concern is noticeably altered.

V-6 Construction of DHSP or the presence of Project components would result in an inconsistency with local regulations, plans, and standards applicable to the protection of visual resources.

V-7 The presence of DHSP would add to a cumulative visual alteration.

### ***CEQA Significance Determination***

This analysis considered the potential impacts of the proposed project and alternatives in relation to the four significance criteria for visual resource impacts listed in Appendix G of the CEQA guidelines (Impact Criteria V-1 through V-4), under Aesthetics, and the three additional criteria (Impact Criteria V-5 through V-7) presented in the previous subsection.

#### *Alternative 1*

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and the BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts to visual resources would not occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

### *Alternative 2*

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. With such an amendment, a similar solar project could be proposed on the project site. Project impacts associated with such a future project would be analyzed at the time a project is proposed through submission of a ROW application and are not considered to result from approval of the No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar and Available for Large-Scale Solar Development). As a result, the DHSP would not be constructed on the project site, and no visual impacts from the DHSP would occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

### *Alternative 3*

Under Alternative 3, the proposed DHSP would not be approved (all components of the project denied), no ROW grant would be issued to the Applicant, and the BLM would amend the CDCA Plan to find the site unsuitable and unavailable for large-scale solar development. This alternative would not place a special designation or level of protection on the project site. If the project study area were not available for large-scale solar development, it would remain available for other types of uses allowable on BLM land. This may include mining, recreation, utilities, and other energy development allowed on lands classified as Multiple Use Class M (Moderate Use), which constitutes most of the project locations, and lower-intensity uses in the areas designated as Multiple Use Class L (Limited Use). As a result, the DHSP would not be constructed on the project site, and no visual impacts from the DHSP would occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

### *Alternative 4*

**Impact Criterion V-1.** Although no designated scenic vistas were identified in the study area, panoramic and highly scenic vistas are available to backcountry recreationists that access the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness. As shown in Figure 4.19-2A and 2B for the representative KOP 2, the solar facility would be prominently visible from elevated vantagepoints in the area, and the introduction of industrial character and structural visual contrast would result in substantial adverse effects on these views. The resulting visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are still required to reduce the visual impact to the extent feasible.

**Impact Criterion V-2.** There are no State Scenic Highways in the immediate project vicinity, so significant visual impacts would not occur under this criterion.

**Impact Criterion V-3.** As discussed in Section 4.19.6 of this analysis, Alternative 4 would introduce a prominent built facility with considerable industrial character into an existing landscape presently absent such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas as demonstrated for KOP 2 and from I-10. The resulting visual impacts would be significant and unavoidable. However, close-proximity, at-grade views of the solar farm (from Kaiser Road, the Lake Tamarisk Community, and SR-177) would be significant but could be mitigated to levels that would be less than significant if a vegetative screening buffer of sufficient width (a minimum of 200 feet) is maintained between the viewing locations and the Project facilities (MM VR-5). More distant at-grade views, such as those at KOP 1 and KOP 4 would not experience substantial degradation of the existing visual character or quality of the landscape because of the apparent small scale of the Project elements at those considerable viewing distances (KOP 1) and/or the presence of intervening screening vegetation (KOP 4). The resulting visual impact in those circumstances would be adverse but less than significant. Views of the project from linear viewpoints including Kaiser Road, SR-177, and I-10 would experience a range of visual impact. Road segments and travel directions labeled in red or orange in Figure 3.19-2 would typically experience significant visual impacts. In some cases, the impact might be mitigable if the strategic planting of sufficient intervening vegetation to intersect sightlines to the project were feasible. Road segments and travel directions labeled in yellow and green in Figure 3.19-2 would experience less than significant or no visual impacts, depending on the presence of intervening screening, typically by vegetation or structures. Mitigation Measures VR-1 through VR-5 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-4.** Joshua Tree National Park is known throughout the National Park System for its significant Dark Sky resource. To serve a substantial public interest in Dark Sky observation, Joshua Tree National Park offers a variety of Night Sky Programs. In the immediate Project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the impact on human dark adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of DHSP. Alternative 4 has the potential to introduce a new source of substantial light that would adversely affect nighttime views in the area. The resulting visual impact would be significant, but it is mitigable to a less than significant level with strict and effective implementation of Mitigation Measure VR-6 (Night Lighting Control).

**Impact Criterion V-5.** The low-to-high degrees of visual change that would be caused by Alternative 4 would be allowed under the applicable Interim VRM Class IV management objective. The Class IV management objective provides for:

> *"....management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic landscape elements."*

Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-6.** The moderate-to-high degree of visual change that would be caused by the proposed solar facility would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-7.** As discussed in Section 4.19.15 the presence of Alternative 4 would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Cumulative impacts are described for Alternative 4 in Section 4.19.15. From a CEQA perspective, Alternative 4 would combine with other past, present, and reasonably foreseeable projects in the project study area to result in a cumulatively significant impact. Alternative 4's contribution to this cumulative impact would be considerable.

*Alternative 5*

The impact significance determinations for Alternative 5 would be the same as for Alternative 4.

*Alternative 6*

The impact significance determinations for Alternative 6 would be the same as for Alternative 4 but impacts to viewers on Kaiser Road would be reduced.

*Alternative 7*

**Impact Criterion V-1.** Although no designated scenic vistas were identified in the study area, panoramic and highly scenic vistas are available to backcountry recreationists that access the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness. As shown in Figure 4.19-2A and 2B for the representative KOP 2, the Proposed project would be prominently visible from elevated vantagepoints in the area, and the introduction of industrial character and structural visual contrast would result in substantial adverse effects on these views. The resulting visual impact would be significant and unavoidable. This conclusion would also apply to Alternative 7 because Alternative 7 would appear very similar to the Proposed project at this viewing distance. However, Mitigation Measures VR-1 through VR-4 are still required to reduce the visual impact to the extent feasible.

**Impact Criterion V-2.** There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

**Impact Criterion V-3.** As discussed in Section 4.19.9 of this analysis, Alternative 7, with its high-profile solar panels, would introduce a prominent built facility with considerable industrial character into an existing landscape presently absent such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas as demonstrated for KOP 2, from close-proximity, at-grade views along Kaiser Road as demonstrated by KOP 3A, and from I-10 as demonstrated by KOP 8A. The resulting visual impacts would be significant and unavoidable. Unlike the Proposed project with its low-profile solar panels, it is unlikely that the high-profile solar panels of Alternative 7 could be sufficiently screened by roadside and intervening vegetation to reduce the visual impact to a level that would be less than significant. However, it is still required that a vegetative screening buffer of sufficient width (a minimum of 200 feet) be maintained between the viewing locations and the Project facilities (MM VR-5). More distant at-grade views, such as those at KOP 1 and KOP 4 would not experience substantial degradation of the existing visual character or quality of the landscape because of the apparent small scale of the Project elements at those considerable viewing distances (KOP 1) and/or the presence of intervening screening vegetation (KOP 4). The resulting visual impact in those circumstances would be adverse but less than significant. Views of the Project from linear viewpoints including Kaiser Road, SR-177, and I-10 would experience a range of visual impact. Road segments and travel directions labeled in red or orange in Figure 3.19-2 would typically experience significant visual impacts. In some cases, the impact might be mitigable if the strategic planting of sufficient intervening vegetation to intersect sightlines to the Project were feasible. Road segments and travel directions labeled in yellow and green in Figure 3.19-2 would experience less than significant or no visual impacts, depending on the presence of intervening screening, typically by vegetation or structures. Mitigation Measures VR-1 through VR-5 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-4.** Joshua Tree National Park is known for throughout the National Park System for its significant Dark Sky resource. To serve a substantial public interest in Dark Sky observation, Joshua Tree National Park offers a variety of Night Sky Programs. In the immediate Project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the impact on human dark adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of DHSP. Alternative 7 has the potential to introduce a new source of substantial light that would adversely affect nighttime views in the area. The resulting visual impact would be significant, but it is mitigable to a less than significant level with strict and effective implementation of Mitigation Measure VR-6 (Night Lighting Control).

**Impact Criterion V-5.** The low-to-high degrees of visual change that would be caused by Alternative 7 would be allowed under the applicable Interim VRM Class IV management objective. The Class IV management objective provides for:

> *"....management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic landscape elements."*

Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-6.** The moderate-to-high degree of visual change that would be caused by Alternative 7 would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-7.** As discussed in Section 4.19.15 the presence of Alternative 7 (similar to the Proposed project) would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Cumulative impacts would be the same for Alternative 7 as Alternative 4.

*Alternative A*

The impact significance determinations for Alternative A would be the same as for Alternative 1.

*Alternative B*

**Impact Criterion V-1.** The proposed transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (more than miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

**Impact Criterion V-2.** There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

**Impact Criterion V-3.** As discussed in Section 4.19.6 of this analysis, the proposed transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including Kaiser Road and the Lake Tamarisk residential development (KOP 5), adjacent BLM lands, and I-10. The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts, and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-4.** The proposed transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

**Impact Criterion V-5.** The high degree of visual change that would be caused by the proposed transmission line (as viewed from Kaiser Road, the Lake Tamarisk residential community, adjacent BLM lands, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-6.** The high degree of visual change that would be caused by the proposed transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-7.** As discussed in Section 4.19.15, the presence of the proposed transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Alternative B would not contribute to cumulative impacts as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

*Alternative C*

The impact criteria conclusions for Alternative C would be the same as described for Alternative B, with the exception of cumulative impacts. Alternative C would have a slightly larger adverse cumulative impact in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. The contribution of Alternative C to cumulative impacts would be considerable in combination with the Desert Sunlight gen-tie and other past, present, and reasonably foreseeable projects.

*Alternative D*

**Impact Criterion V-1.** The Alternative D transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (over two miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

**Impact Criterion V-2.** There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

**Impact Criterion V-3.** As discussed in Section 4.19.6 of this analysis, the Alternative D transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including Kaiser Road (briefly), adjacent BLM lands, SR-177, and I-10 (KOP 6). The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-4.** The Alternative D transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

**Impact Criterion V-5.** The high degree of visual change that would be caused by the Alternative D transmission line (as viewed from Kaiser Road [briefly], adjacent BLM lands, SR-177, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-6.** The high degree of visual change that would be caused by the Alternative D transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in an unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-7.** The presence of the Alternative D transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Cumulative impacts would be slightly less than those described for Alternative C, but would nonetheless be cumulatively considerable.

#### *Alternative E*

**Impact Criterion V-1.** The Alternative E transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (more than two miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

**Impact Criterion V-2.** There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

**Impact Criterion V-3.** As discussed in Section 4.19.6 of this analysis, the Alternative E transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including adjacent BLM lands, SR-177 (KOP 7), and I-10 (KOP 8). The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts, and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-4.** The Alternative E transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

**Impact Criterion V-5.** The high degree of visual change that would be caused by the Alternative E transmission line (as viewed from adjacent BLM lands, SR-177, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-6.** The high degree of visual change that would be caused by the Alternative E transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in an unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

**Impact Criterion V-7.** The presence of the Alternative E transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Cumulative impacts would be the same as described for Alternative D.

# Section 4.20

## Water Resources

## 4.20 WATER RESOURCES

### 4.20.1 Methodology for Analysis

This section describes effects on water resources that would be caused by implementation of the proposed Desert Harvest Solar Project (DHSP) or an alternative. A discussion of cumulative effects related to water resources is also included in Section 4.20-13. Effects to water resources were identified based on the predicted interaction between construction, operation, and decommissioning of the project or an alternative and the baseline environmental setting described in Section 3.20.

Water resources effects were considered for the project's potential to: violate water quality standards or waste discharge requirements; substantially deplete groundwater supplies or interfere with groundwater recharge; substantially alter existing drainage patterns such that erosion or flooding occur on- or off-site; place structures within Flood Hazard Areas such that flood flows would be impeded or redirected, or result in substantial risk associated with flooding; substantially degrade surface water or groundwater quality.

### 4.20.2 Applicant Measures

Applicant proposed measures relevant to water resources that would be implemented during project construction, operation and maintenance, and/or decommissioning, as appropriate, are listed below.

**AM WR-1** **Manage Hazardous Materials and Use SPCC Plan.** The Applicant or its agents will:

- Train construction staff in the management of hazardous materials and use of spill control and cleanup equipment;
- Have a clear chain of command within the organizational structure with responsibility for implementing, monitoring, and correcting BMPs;
- Cover and contain hazardous materials so that they are not in contact with precipitation or runoff;
- Store hazardous materials in one or more central areas, and institute rules requiring all hazardous materials to be secured at the end of the day;
- Maintain good inventory records; store hazardous liquids and dispensing equipment in secondary containment;
- Maintain adequate quantities of spill containment and response equipment at readily accessible points throughout the site;
- Identify the worst case and most likely spill scenarios, and provide spill response equipment adequate to respond to these scenarios;
- Use chemicals presenting the least environmental hazard wherever possible;
- Store the smallest quantities of hazardous materials possible on the site;
- Maintain site security to reduce vandalism;

- Require all contractors to abide by the program BMPs and to identify any hazardous materials and specific BMPs pertaining to their trade or activity.
- The SPCC Plan for the site would address storage of mineral oil contained in transformers. A SPCC Plan is required when 10,000 gallons or more of mineral oil in electrical equipment is contained on site, or when 1,320 gallons of petroleum is stored on the site, although an SPCC Plan can be voluntarily implemented for lesser quantities. The SPCC Plan would address methods and procedures for managing these products, lighting, security, containment requirements, training requirements, staff responsibilities for inspecting storage and dispensing equipment; and equipment and procedures for responding to a spill or release of stored petroleum products.
- Riprap increases surface roughness and slows runoff velocities, decreasing sediment transport, and increasing flow depth. Riprap would be used in conjunction with decompaction of soil, as riprap would not mitigate flow or volume.
- Check whether dams can be constructed to address specific post-development hydraulic characteristics, if needed.

### 4.20.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.20.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.20.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.20.6 Alternative 4 – Proposed Solar Project

The project is expected to occur in compliance with all applicable water quality standards and waste discharge requirements, as presented in Section 3.20.2 of this EIS. Key standards and requirements relevant to water resources effects of the project include, but are not limited to, those listed below.

- Streambed Alteration Agreement (SAA) from the California Department of Fish and Game (CDFG) for alterations to state-jurisdictional streambeds
- Clean Water Act (CWA) Section (§) 404 permit from the U.S. Army Corps of Engineers (USACE), if a determination of USACE jurisdiction is made for the project site
- CWA §402 National Pollutant Discharge Elimination System (NPDES) permit from the U.S. Environmental Protection Agency (USEPA) for discharge of pollutants
- CWA §401 Water Quality Certification (WQC) from the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the discharge of dredged or fill materials

All applicable water quality standards and waste discharge requirements are presented in Section 3.20.2 of this EIS. Mitigation Measure (MM) WAT-1 (Demonstrate Compliance with Water Quality Permits), presented below under the "Mitigation Measures" heading, requires the Applicant to demonstrate compliance with all applicable permitting requirements prior commencing construction, which will ensure that the project is in compliance with all applicable water quality permits and waste discharge requirements associated with construction, operation, and decommissioning activities. Therefore, potential effects associated with permit compliance are the same for all three project phases, and are not addressed further in this discussion for Alternative 4.

#### *Construction*

Construction water requirements associated with the entirety of the proposed project or alternatives are summarized in Table 4.20-1, including water required for the solar facility as well as water required for the gen-tie (impacts of the gen-tie alternatives are discussed separately in Sections 4.20.10 through 4.20.14).

**Table 4.20-1. Construction Water Requirements**

| Construction Component | Acre-Feet per Year | Total Acre-Feet |
|---|---|---|
| Dust Suppression | 400–500 | 800–1,000 |
| Concrete Batching | 0.51 | 0.51 |
| Total | 400.51–500.51 | 801.02–1,001.02 |

1 - Per Table 2-2 (Estimated Truck Deliveries), the project would require 165 concrete truck deliveries. Assuming that each truck would carry approximately 10 cubic yards of concrete, total concrete for the project is approximately 1,650 cubic yards. Per the 1997 Uniform Building Code (UBC 1997), the maximum water-to-concrete ratio should be no more than 0.5 (see Tables 19-A-2 and 19-A-4, "Maximum Water-Cementitious Materials Ratio, By Weight, Normal-Weight Aggregate Concrete" of (UBC 1997)). Assuming the weight of concrete is 150 pounds per cubic foot and the weight of water is 62.4 pounds per cubic foot, the total water required for concrete is 22,275 cubic feet, or approximately 0.51 acre-foot.

2 - Water required for the gen-tie includes water associated with concrete batching.

As shown in Table 4.20-1, construction would require approximately 400.51 to 500.51 afy over the 24-month construction period, for a total of approximately 801.02 to 1,001.02 acre-feet. A total of three temporary storage ponds would be constructed on the project site to ensure that the necessary water supply is available when needed. Each pond would occupy approximately three-quarters of an acre and would have a capacity of 21.5 million gallons, for a total area of 2.25 acres and a total capacity of 64.5 million gallons, or approximately 198 acre-feet. In order to maximize efficient use of the project site while also ensuring that sufficient water supply is available to the area(s) that are actively undergoing construction activities at any given time, two or three ponds would operate simultaneously, with one pond designated per every approximately 400 acres of the site that are under active site preparation or construction activities that require water. The ponds would be connected to supply wells and would be co-located with planned stormwater retention basins that would be used during project operation to address stormwater runoff, such as described in MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications). During construction of the project, the temporary storage ponds would be lined to prevent infiltration, fenced for public safety, and covered with netting to deter ravens. All applicable BMPs identified in the project's Surface Water Protection Plan (SWPP), as required by MM WAT-4, would be implemented during use of the temporary storage ponds.

### *Direct Effects*

Direct effects are those effects "…which are caused by the action and occur at the same time and place" (40 CFR 1508.8(a)).

#### *Groundwater Supply and Recharge*

As described above, total construction water demand would be 801.02 to 1,001.02 acre-feet over a period of 24 months, or 400.51 to 500.51 afy. The Applicant's Plan of Development (POD) indicates that pending the permitting and physical feasibility of using on-site groundwater wells, construction water will either be obtained from on-site wells and/or it would be pumped from off-site wells in the project area and trucked to the project site. The project and surrounding area is underlain by the Chuckwalla Valley Groundwater Basin (CVGB), and it is reasonably assumed that the source of construction water is the CVGB, regardless of whether the water is pumped on-site or off-site. Also as described in the Applicant's POD, enXco will perform the necessary studies and secure the necessary permissions to install any wells required, and tests will be performed according to all best practices and established protocols to ensure water sufficiency and quality at each active well of appropriate capacity will be evaluated. Potential impacts associated with trucking are addressed in other relevant sections of this document, including Sections 4.18 (Transportation and Public Access), 4.12 (Noise and Vibration), and 4.2 (Air Resources); potential impacts associated with trucking water to the project site are discussed below, under Mitigation Measure WAT-2 (Alternative Water Source and Groundwater Offsets).

Project construction could affect groundwater supply and recharge if one of the following occurs: (1) the affected groundwater basin is in long-term overdraft conditions; (2) construction activities cause the affected groundwater basin to be in long-term overdraft conditions; (3) substantial drawdown occurs at groundwater wells in the area as a result of construction groundwater pumping; or (4) construction activities redirect natural recharge to groundwater basin(s), such as through the introduction of impervious areas that prevent infiltration. Each of these potential conditions is discussed below.

**Overdraft and Drawdown.** Groundwater overdraft occurs when the quantity of water removed from a groundwater basin exceeds the rate of recharge to that basin, while drawdown occurs when groundwater pumping lowers the aquifer level such that other wells in the vicinity of pumping activities experience an increased depth to groundwater, requiring greater energy to draw the same volume of water from affected wells. Overdraft and drawdown effects may be long-term, where substantial permanent new groundwater demands are introduced, or may be short-term and seasonal, where new groundwater demand(s) are introduced but are temporary, such that the existing balance of groundwater removal and recharge is restored once the new demand(s) ceases. The discussion of groundwater resources presented in Section 3.20 of this EIS includes characterization of the current safe yield for the CVGB. Table 3.20-2 (Estimated Budget for the Chuckwalla Valley Groundwater Basin) states that the current hydrologic budget for the CVGB is 2,623 afy. This positive hydrologic budget indicates that the CVGB is not currently affected by long-term overdraft conditions.

As described above, construction of the project would require a water supply of 400.51 to 500.51 afy; the hydrologic budget presented in Table 3.20-2 indicates that sufficient groundwater supply is available in the CVGB to meet project construction requirements. However, depending on climatic conditions and pumping intensity, it is possible that groundwater pumping activities associated with project construction could contribute to temporary overdraft and/or drawdown conditions. Groundwater pumping for construction of the project would be short-term and limited specifically to the construction period of 24 months. Additionally, if construction of the project results in overdraft or drawdown conditions, such effect(s) would be temporary and would be expected to reverse once project pumping activities cease. Therefore, construction of the project would not have the potential to result in long-term overdraft conditions.

Effects associated with the potential for project construction to contribute to short-term overdraft and/or drawdown conditions would be minimized or avoided through implementation of mitigation measures presented under the “Mitigation Measures” subheading and summarized below.

- MM WAT-2 (Alternative Water Source and Groundwater Offsets) would address potential drawdown effects by avoiding pumping or over-pumping at the project’s supply well(s), and by ensuring that the project does not perpetuate known or predicted overdraft conditions.
- MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would address potential overdraft effects by requiring comprehensive monitoring and reporting activities, as well as close coordination with the BLM and Colorado River Basin RWQCB.

**Recharge.** As described in Section 3.20, primary recharge to the CVGB occurs through percolation of runoff from the surrounding mountains, percolation of precipitation to the valley floor, and subsurface inflow from adjacent groundwater basins (see Table 3.20-2, Estimated Budget for the Chuckwalla Valley Groundwater Basin). Surface runoff from the surrounding mountains is largely ephemeral, with most surface water features containing flow only in direct response to precipitation events, and average annual precipitation in the area is only 3.6 inches. The project would have no effect on precipitation rates in the area. However, the placement of permanent and temporary project features could affect the distribution of groundwater recharge across the site. Creation of new impervious surfaces associated with the project could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underlying groundwater resources.

New impervious surfaces would result from the implementation of permanent project components, including the PV panels, concrete foundations, O&M facility, access roads, and substation. Soil compaction associated with access road improvements and the use of heavy equipment and vehicles across the project site could also affect recharge by reducing the rate at which water is able to percolate through the ground. In addition to permanent infrastructure, temporary construction facilities including covered assembly areas, staging areas, and temporary parking areas would also introduce new impervious areas that could affect the rate and distribution of surface water percolation/infiltration to underlying groundwater.

The placement of PV panels and foundations would likely result in site-specific redistribution of recharge rates, but is not expected to result in a substantial effect to groundwater recharge rates or quantities, such that the overall groundwater basin would be affected. Each individual PV panel is an impervious feature, but the panels would be organized into arrays with each array consisting of 12 rows of mounted PV panels; with this configuration, there would be spaces between each mounted panel where precipitation would pass through, reaching the ground below for percolation to underlying groundwater resources.

Other permanent and temporary project features mentioned above would have similar effects to groundwater recharge; site-specific alterations in the distribution of recharge patterns are anticipated to occur, but such effects would not reduce overall recharge of the CVGB. Applicant measures listed in Section 4.20.2 include a measure which requires the use of riprap to increase surface roughness and slow runoff velocities; this measure would also minimize potential adverse effects to groundwater recharge because slower runoff facilitates infiltration, thus maximizing groundwater recharge. Additionally, mitigation measures presented under the "Mitigation Measures" subheading and summarized below would minimize or avoid potential effects to groundwater recharge during construction.

- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) requires the implementation of BMPs which would maximize groundwater recharge, such as use of high-roughness groundcover and use of common drainage basin(s) or depression(s) where runoff would collect.

**Construction Site Dewatering.** Construction of the project would require excavation activities that may encounter shallow groundwater and require construction site dewatering activities. Perched or shallow groundwater may be ephemeral in nature (occurring in direct response to precipitation events), or it may be recharged by percolation from surface water and/or nearby saturated subsurface zones. Perched groundwater is essentially a subsurface zone of saturation that is separated from the main groundwater table by a typically impermeable divide. It is not possible to quantify the likelihood of encountering perched groundwater because it is not part of the main groundwater resource and would not be detected in typical groundwater monitoring activities. If project excavation results in the unexpected encountering of perched groundwater, the local groundwater supply could be adversely affected as a result of directly encountering construction vehicles and equipment, and encountering the potentially hazardous materials such as motor oil and lubricating fluids required to operate vehicles and equipment, and/or the local groundwater supply could be adversely affected due to uncontrolled release of groundwater onto the surface. Measures presented under the "Mitigation Measures" subheading and summarized below would minimize or avoid potential effects associated with construction site dewatering.

- MM WAT-5 (Construction Site Dewatering Management) would ensure that if perched groundwater is unexpectedly encountered during project construction, dewatering activities would occur in compliance with the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook for Construction, or other similar guidance document supported by the BLM.

**Water Supply Reliability.** Section 3.20 of this EIS provides a discussion of Senate Bills 610 and 267, which require detailed analysis of water supply availability for certain types of large development projects. In accordance with California Water Code, as amended by SB 610 and SB 267, a Water Supply Assessment (WSA) has been prepared for the project and is included as Appendix E to this EIS. The WSA presents detailed analysis of water supply availability projections under normal-year, single-dry year, and multiple-dry year conditions. As projected in Tables WSA-9 through WSA-15 and based on assumptions presented in Section 4.6 of the WSA, overdraft conditions could occur during implementation of the proposed DHSP. Such conditions would occur regardless of the project and would recover over the lifetime of the project in response to anticipated water usage associated with other projects in the basin; therefore, with consideration of the assumptions described in the WSA, overdraft conditions in the CVGB are anticipated to be temporary. In addition, construction of the DHSP would include the implementation of mitigation measures to avoid project-related contribution to overdraft conditions and potential water supply reliability effects. Measures relevant to water supply reliability are presented under the "Mitigation Measures" subheading and summarized below.

- MM WAT-2 (Alternative Water Source and Groundwater Offsets) would avoiding pumping or over-pumping at the project's supply well(s), and ensure that the project does not perpetuate known or predicted overdraft conditions.
- MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan), previously mentioned, would require comprehensive groundwater monitoring and reporting actions during project pumping activities, including close coordination with regulatory agencies and response actions to address detected adverse effects.
- MM WAT-6 (Drought Water Management and Water Conservation Education Programs) would adjust the project's water use under severe drought conditions, and ensure associated training of project operators and employees.

Sufficient water supply is anticipated to be available for the project, and implementation of the project would not result in adverse effects to water supply reliability. Please see the WSA presented as Appendix E for further discussion of water supply reliability.

**Colorado River Water.** As discussed in Section 3.20 (see "Colorado River Accounting Surface"), groundwater pumped from the CVGB at or below an elevation of 234 feet amsl is considered Colorado River water. According to the Colorado River Board of California (CRBC), municipal, industrial, and recreational water users found to be using Colorado River water, through Accounting Surface delineations, without a Colorado River water right may be eligible to contract for water from the Lower Colorado Water Supply Project (CRBC 2000). Also as described by the CRBC, if a well or pump extends into the Accounting Surface for the purpose of extracting water, then a valid water contract is required from the Secretary of the Interior, through its agent, the Bureau of Reclamation (CRBC 2003).

The discussion presented under "Groundwater Level Trends" in Section 3.20 indicates that groundwater levels in the Hayfield Planning area, including the CVGB and the project site, range from the ground surface to 400 feet below ground surface (bgs). Google Earth (2011) indicates that ground surface elevation at the project site ranges from approximately 670 feet amsl in the northwest to approximately 590 feet amsl in the southeast. As such, depth to groundwater on the project site may be up to 190 to 270 feet amsl. For the purposes of this effects discussion, depth to groundwater is assumed to be 230 feet amsl (the average of 190 and 270), approximately four feet above the Colorado River Accounting Surface.

The DWR reported in the latest Bulletin 118 Update (2004) that the upper 100 feet of saturated sediments in the CVGB are estimated to have approximately 900,000 acre-feet of groundwater in storage, as based on the 1975 version of DWR Bulletin 118 (DWR 2004). Based on this 1975 estimation, the upper four feet of saturated sediments between the assumed water surface elevation of 230 feet amsl (noted above) and the Colorado River Accounting Surface could potentially contain 36,000 acre-feet of water, assuming 900,000 acre-feet in the upper 100 feet, divided by 100 feet, then multiplied by four feet (SCE 2010). These estimates suggest that there is sufficient groundwater in storage above the Colorado River Accounting Surface to meet the project's construction water requirements of 400.51 to 500.51 afy.

If all water required for construction of the project is pumped from saturated sediments above the Colorado River Accounting Surface, it could be concluded that the project would not consume any appropriated Colorado River water. However, the estimates of groundwater storage described above are based on DWR data from 1975 (DWR 2004), and do not consider uses of the CVGB water which have developed in the 35 years since then and would affect the volume of water in storage, both above and below the Colorado River Accounting Surface. The calculations described above also assume that groundwater stored in the upper 100 feet of saturated sediments is distributed evenly, and that the volume in storage within a four-foot section of these sediments can been directly extrapolated from the overall storage.

The assumptions described above are problematic compared to current understanding of subsurface conditions in the project area. Environmental analysis of the Genesis Solar Energy project, which is also located within the CVGB, included preparation of hydrostratigraphic cross-sections, or diagrams/maps of subsurface materials which form distinct hydrologic units with respect to the movement of groundwater. These cross-sections indicate varying sub-surface conditions relevant to grain size and static groundwater levels (CEC 2010; see pages 944-946 of 1380: *Soil and Water Figures 8, Hydrostratigraphic Cross-Section A-A', 9, Hydrostratigraphic Cross-Section B-B'*, and *10, Hydrostratigraphic Cross-Section Lines*). It is plausible that the volume of water in storage within the saturated sediments above the estimated Colorado River Accounting Surface, and the distribution or availability of water stored in saturated sediments are less than indicated by the estimates described above; it is also plausible that the proposed groundwater well at the project site could result in pumping of Colorado River water by drawing water from below 234 feet amsl. Therefore, mitigation is required to avoid potential effects associated with use of appropriated Colorado River water.

Construction of the project would include implementation of Mitigation Measure WAT-7, which is presented under the "Mitigation Measures" subheading and summarized below, as relevant to use of appropriated Colorado River water.

- MM WAT-7 (Colorado River Water Supply Plan) would ensure that if the project results in pumping of any Colorado River water, conservation actions would be implemented to "replace" the Colorado River water on an acre-foot by acre-foot basis.

*Surface Water and Drainage Patterns*

As described in Section 3.20, existing drainage patterns on the project site are characterized by ephemeral drainages which contain water only after precipitation events sufficient to produce runoff. Project construction would alter surface water drainage patterns across the project site through the implementation of infrastructure and components such as the temporary water storage ponds described above, the PV arrays and access roads, and soil compaction required to install these features. Construction of the project would include both temporary and permanent disturbance to the site; temporary disturbance would result from trenching for electrical conduit, construction staging areas, concrete batch plant, and temporary access roads, while permanent disturbance would result from construction of access roads, the substation and O&M facility, parking areas, and equipment pads.

Alterations to drainage patterns on and surrounding the project site during the construction phase could result in erosion and/or flooding effects on- or off-site. Encroachment of a project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Earthmoving activities would occur within and/or adjacent to on-site drainages only where permitted for permitted road crossings, trenching, and restoration work. In addition, it is anticipated that some project features would be placed in areas subject to periodic overland flow and/or broad, ephemeral washes. Compliance with required laws and regulations described in Section 3.20 would minimize the project's potential effects on the drainage patterns of the area.

As described in Section 3.20.2 under "Surface Water Resources," the Desert Sunlight Solar Farm project, which is located adjacent to the north of the DHSP site, had initiated construction activities at the time of publication of the Notice of Intent for DHSP, and the initial stages of the Desert Sunlight project have included the construction of a perimeter fence and earthen berm along the project boundary. The berm surrounds a water storage and evaporation pond, both of which will be removed following construction of the Desert Sunlight project; the berm is not anticipated to interfere with surface water flows onto the DHSP site.

The DHSP site is located in an area that has been identified by the DWR as an "Awareness Floodplain," or an area that is considered prone to flooding but has not been mapped by FEMA. In accordance with Riverside County's Floodplain Management Ordinance 458, development within the Awareness Floodplain is required to comply with specific guidelines designed to avoid flood hazards associated with the placement of infrastructure within areas prone to flooding; such guidelines are summarized in Section 3.20 under the subheading "Riverside County Floodplain Management Ordinance 458". As described above and in compliance with MM WAT-1 (Demonstrate Compliance with Water Quality Permits), the Applicant shall demonstrate compliance with all applicable permitting requirements prior to commencing construction; this includes permit(s) for development within the Awareness Floodplain for compliance with Ordinance 458.

As described in the analysis of groundwater recharge effects presented under "Groundwater Supply and Recharge," construction of the project would include soil compaction associated with access road improvements and the use of heavy equipment and vehicles across the project site; soil compaction could increase surface water runoff rates and quantities, particularly during a large (100-year) storm event. The environmental analysis for the Desert Sunlight Solar Farm project included preparation of hydrologic, hydraulic, sediment transport, and scour analyses of stormwater patterns and behaviors under various mitigation scenarios; the results of these analyses were presented in a report titled *Storm Water Hydrology Report*, which was included as Appendix G to the Final EIS for the Desert Sunlight project. Due to the close proximity of the Desert Sunlight site and the DHSP site, as well as similarity of landscape and drainage patterns across the two sites, the *Storm Water Hydrology Report* contains analysis that is applicable to the DHSP. Although the Desert Sunlight project is larger than the DHSP and the magnitude of impacts would vary due to differences in the projects' size, it would employ solar PV technology and associated infrastructure, and the types of impacts to surface water and drainage patterns that would occur as a result of this infrastructure are reasonably anticipated to be similar under the DHSP. Results and recommendations of Desert Sunlight's *Storm Water Hydrology Report* are summarized below, as relevant to the DHSP (AECOM 2010).

- Without the implementation of mitigation measures, solar development construction would increase stormwater peak-flow rates and velocities both on site and off site, particularly under 100-year and 10-year storm conditions.
- De-compacting soils in areas between panel arrays would help to maintain pre-development hydraulic conditions, particularly as related to the potential for flooding on or off site.
- Construction of features such as basins with riprap protection and/or detention basins would retain excess stormwater flow resulting from the project.
- Construction of PV arrays would include placement of foundations which would be subject to scour, particularly following a 100-year storm event; placement of riprap at the base of each support structure would help reduce the effects of local scour and decrease runoff velocities.
- Construction of the solar development would apply consistent soil type, compaction, and grading patterns across the site, in comparison with existing conditions, which are marked by areas of relatively inactive sediments ("desert pavement") as well as more active areas characterized by finer sand and gravel; these changes would likely create a geologic environment conducive to the formation of shallow channels up to two feet or less in depth (i.e. long-term scour), mitigable by periodic monitoring to identify changes to the site grading and maintenance activities as/if needed to restore design conditions.

Section 1.2.10 (Erosion Control and Stormwater Drainage) of the Applicant's POD for the project describes that with the exception of the inverters and transmission facility, solar facility development will maintain drainage patterns where possible, with water exiting the site in existing natural contours and flows. In addition, impervious groundcover will be minimized to the inverter and transmission cement pad and a small parking area, in order to maintain existing drainage patterns and infiltration throughout the photovoltaic panel field. Existing small to moderate ephemeral washes will remain intact at locations capable of being traversed by installation equipment. Where paved roads cross larger ephemeral washes, culverts will be constructed to withstand the 100-year, 24-hour storm event. Where unpaved roads cross washes, a slight grading of the channel bank will allow vehicles to cross the wash. To ensure that these project design features are implemented to effectively minimize potential effects of project construction to surface water and drainage patterns, mitigation measures for project construction are required, as presented under the "Mitigation Measures" subheading and summarized below.

- MM WAT-8 (Flood and Erosion Structure Damage Protection) would ensure that permanent project features are designed per applicable floodplain development guidelines and maintained to avoid adverse impacts to stormwater runoff.
- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project occurs in compliance with all applicable laws and regulations, including as relevant to drainage pattern alterations.
- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) would ensure that specific BMPs are implemented during project construction to address the potential for increased stormwater runoff and erosion on and off site, including through de-compaction of soils on the project site.

**State Jurisdictional Drainages.** Surface water and drainage patterns could be adversely affected if jurisdictional drainages are disturbed or altered as a result of project construction. As described in Sections 3.3 (Biological Resources - Vegetation) and 3.4 (Biological Resources - Wildlife) of this EIS, designated jurisdictional drainages are located throughout the project site. Aspen has calculated the total acreage of state-jurisdictional streambeds and adjacent riparian habitat as 113 acres within the proposed solar generator site. Each of the generator tie-line alternatives would affect a limited additional acreage of state-jurisdictional streambeds or woodland vegetation, depending on the specific locations of access roads, transmission line structures, and work sites. Potential impacts of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources - Vegetation) and 4.4 (Biological Resources - Wildlife) of this EIS.

### *Stormwater Drainage Systems*

No stormwater drainage system exists at the project site. Construction of the project would include implementation of a Surface Water Protection Plan (SWPP), in compliance with MM WAT-4. The SWPP will specify BMPs to minimize and/or avoid potential effects associated with stormwater runoff. As described above, construction of the project would include implementation of numerous actions to minimize increases in stormwater runoff quantity and velocity; the project is not expected to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. There is potential for construction of the project to contribute sources of polluted runoff if an accidental leak or release of harmful materials were to occur during construction activities; potential water quality effects are discussed in detail below (see "Water Quality").

### *Flood Hazard Areas*

As described in Section 3.20.2 (see "Surface Water Resources"), the project site and surrounding area are designated by FEMA as Flood Zone D, or areas with "possible but undetermined flood hazards," where no flood hazard analysis has been conducted. According to FEMA, development is permitted in Flood Hazard Areas provided that the development complies with local floodplain management ordinances. The *Preliminary Flood Plain & Hydrology Analysis* prepared for the project indicates that surface water flows resulting from a 100-year storm event in the project area can exceed 1,800 cubic feet per second, and flow depth would not exceed three to five feet (PHB & Associates 2009). All applicable floodplain management ordinances would be fully complied with in accordance with FEMA's regulations on development in Flood Hazard Areas. The permanent aboveground features associated with the project would be designed and engineered to withstand potential flooding and erosion hazards. Mitigation measures presented under the "Mitigation Measures" subheading and summarized below would avoid potential effects of project construction associated with Flood Hazard Areas.

- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project occurs in compliance with all applicable laws and regulations.
- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) would ensure that specific BMPs are implemented during project construction.
- MM WAT-8 (Flood and Erosion Structure Damage Protection) would ensure that permanent project features are designed and constructed per applicable development guidelines.

*Water Quality*

Construction, operation and maintenance, and decommissioning of the project is expected to be consistent with all beneficial uses and water quality criteria defined in the Basin Plan, as discussed in Section 3.20 of this EIS.

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during project construction, including excavation and grading, would have the potential to result in soil erosion (transport) and sedimentation (delivery) that could degrade water quality. This impact would be most likely if a storm event occurs during construction activities, while disturbed soils are exposed and/or have not yet been re-vegetated.

In addition to the potential effects of erosion and sedimentation, the accidental release of hazardous materials during construction of the project could result in water quality degradation within and downstream of the site. Potentially hazardous materials that may be used and/or produced during construction include but are not limited to the following: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids required for the operation of construction vehicles and equipment. Motorized equipment used at the project site during construction could leak hazardous materials, such as motor oil, transmission fluid, or antifreeze, due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error.

Direct contact with potentially hazardous materials could result from a spill or leak that occurs directly above or within the bed and banks of a flowing stream or waterbody. Because surface water on the project site is ephemeral in nature, direct contamination as a result of accidental release is considered unlikely, unless a precipitation event occurs during active construction activities. Indirect contamination of surface water could occur if a potentially harmful or hazardous material is released into a dry stream bed or wash and is subsequently transported through runoff during a storm event, eventually making contact with perennial flowing water. Groundwater resources could also be contaminated through indirect contact with potentially harmful or hazardous materials. This could occur if an accidental spill of harmful materials is allowed to leach through the ground surface to underlying groundwater resources, or if construction-related excavation activities encounter perched groundwater and direct contact with hazardous materials occurs.

The DHSP would use herbicides for weed control as appropriate, as outlined in the Integrated Weed Management Plan in Appendix C10. Use of herbicides would be in accordance with the measures and standard operating procedures in the BLM's Herbicide PFEIS. As described in Chapter 1, Section 1.9.1, the DHSP EIS is tiered to the Herbicide PFEIS. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9 (use licensed herbicide applicator), and the mitigation measures below (MM WAT-9, MM WAT-1, MM WAT-4, and MM WAT-5) would avoid potential effects of herbicides on water quality.

Section 1.2.17 (Spill Prevention and Containment) of the Applicant's POD for the project states that a Spill Prevention Control and Countermeasure Plan (SPCC) will be prepared and implemented during construction of the project. The construction SPCC Plan will include spill prevention and countermeasures procedures including but not limited to the following: a spill record (if applicable), analysis of potential spills, description of containment facilities, fill and overfill prevention facilities, spill response procedures, personnel training and spill prevention. The project's substation would include equipment that required containment in the case of a spill or accidental release of hazardous materials, and the substation pad will be designed to capture any spills of insulator material; the solar facility is not anticipated to require containment structures. Construction and maintenance vehicles will be maintained in accordance with manufacturer recommendations to minimize the risk of vehicle spills.

Mitigation measures presented under the "Mitigation Measures" subheading and summarized below would avoid potential effects of project construction to water quality.

- MM WAT-9 (Accidental Spill Control and Environmental Training) requires implementation of BMPs to avoid potential water quality impacts associated with accidental spill(s) or release(s) of materials during construction. .
- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) ensures that construction of the project would occur in compliance with all applicable water quality regulations.
- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) specifies BMPs to be included in the project's SWPP that would minimize or avoid potential water quality impacts.
- MM WAT-5 (Construction Site Dewatering Management) ensures that if dewatering activities are required during project construction, they would occur per approved guidelines, thus minimizing the potential for adverse water quality impacts to occur.

### *Indirect Effects*

Indirect effects are those effects "…which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on water and air and other natural systems, including ecosystems" (40 CFR 1508.8(b)).

Potential indirect effects to water resources associated with construction of the Alternative 4 could occur if one of the scenarios described below is realized as a result of project construction.

- Groundwater pumping associated with construction of the proposed project decreases outflow from the CVGB to hydrologically connected groundwater basin(s), resulting in decreased water availability in the affected basin(s).
- An accidental spill or leak of hazardous materials occurs and the material(s) is left on the ground surface, where it leaches through soils to underlying groundwater resources, resulting in groundwater contamination.
- Soil erosion and sedimentation generated on-site as a result of ground disturbance during construction of the proposed project is not contained on-site and is subsequently transported off-site through stormwater runoff, resulting in degradation of downstream water quality.

Compliance with the mitigation measures summarized above and presented below under the "Mitigation Measures" sub-heading would minimize or avoid the potential for the indirect effects described above to occur as a result of construction of Alternative 4.

### *Operation and Maintenance*

Section 2.4.3 (Structures and Facilities) describes that a double-pass reverse osmosis (RO) system and demineralization evaporation pond would be used to treat locally pumped groundwater by decreasing concentrations of total dissolved solids (TDS) to a level acceptable for application on the panels. The RO system would produce up to approximately 20 gallons per minute (gpm) of low-TDS water, as well as approximately 9 gpm of "reject water," or brine water that is too high in TDS content to be applied to the PV panels during washing activities. As such, approximately 45 percent of water produced by the RO system would be reject water. The reject water would be piped to an evaporation pond encompassing approximately one acre, where the liquid would evaporate, leaving salts and minerals that would be cleaned out and disposed of at an appropriate facility as needed. Operational water requirements associated with the project are summarized in Table 4.20-2.

**Table 4.20-2. Operational Water Requirements**

| Project Component | Acre-Feet per Year |
|---|---|
| Panel Washing | 18–27 |
| Reverse Osmosis Reject Water | 8–12 |
| O&M Facilities and Fire-Fighting | 0.02[1] |
| Total | 26.02–39.02 |

1 - As described in Section 2.4.5 (Operations and Maintenance Activities), under "Operations Equipment," a permanent, above-ground 5,000-gallon water storage tank would be used for O&M tasks and facilities, including on-site fire-fighting; 5,000 gallons converts to approximately 0.02 acre-feet. It is anticipated that the storage tank would need to be re-filled on an annual basis.

As shown in Table 4.20-2, the project's total operational water requirement would be approximately 26.02 to 39.02 afy.

Operation and maintenance of the project would include routine preventative maintenance as well as corrective maintenance activities, as needed. As described in the Applicant's POD, the project will be maintained using a Computerized Maintenance Management Software (CMMS) package, vendor and contractor recommendations, and good engineering practices to plan and implement the component preventive maintenance program. Potential effects from operation and maintenance of the project to water resources are discussed below.

### *Direct Effects*

#### *Groundwater Supply and Recharge*

Operation of the project would require a water supply of 18 to 27 afy for washing PV panels, assuming 1.1 gallons of water for each PV panel and a washing schedule of two to three times per year. As with construction of the project, it is anticipated that operational water would be pumped from the underlying CVGB using on-site supply wells, or it would be pumped from off-site wells within the CVGB and trucked to the project site. Potential impacts associated with trucking the proposed DHSP water supply to the site are discussed under Mitigation Measure WAT-2 (Alternate Water Source and Groundwater Offsets).

**Overdraft and Drawdown.** The CVGB is not currently affected by long-term overdraft conditions, and the hydrologic budget presented in Table 3.20-2 indicates that sufficient groundwater supply is available in the CVGB to meet the project's operational water requirements of 26.02 to 39.02 afy, which is roughly 176 percent lower than the project's construction water requirements of 400.51 to 500.51 afy. It is not anticipated that operational groundwater pumping would result in substantial overdraft or drawdown conditions. However, as described in the discussion of construction effects, MM WAT-3 requires that the project's Groundwater Monitoring and Reporting Plan would be implemented for at least the first five years of the project, beginning with the onset of construction. As specified in MM WAT-3, annual groundwater monitoring data reports will be submitted by the Applicant to the BLM and the Colorado River Basin RWQCB, and if corrective action(s) will be required if these reports indicate groundwater trends such as overdraft or drawdown.

**Recharge.** Operation of the project would not introduce new impervious surfaces (not previously introduced during construction of the project) and would not further compact soils on the project site such that groundwater recharge would be adversely affected. The presence of PV panels over the lifetime of the project could affect localized runoff patterns due to "drip line" effects, which occur when surface runoff in direct response to precipitation events is concentrated along the lowest edge of PV panel arrays. These localized effects to surface water runoff patterns would have no effect on infiltration rates or groundwater recharge

**Construction Site Dewatering.** Operation of the project would not include ground-disturbing activities that could result in encountering shallow or perched groundwater resources; dewatering activities would not be necessary.

**Water Supply Reliability.** As noted above, it is anticipated that the project would require an operational water supply of 26.02 to 39.02 afy, which includes high-TDS reject water that would be produced through the RO system. The WSA included as Appendix E indicates that overdraft conditions could occur during implementation of the proposed project and alternatives, but such conditions would be temporary, and would likely occur regardless of the project. Sufficient water supply is anticipated to be available for the project, and implementation of the project would not result in adverse effects to water supply reliability.

**Colorado River Water.** As with construction, operation of the project would include the potential to pump groundwater from below the Colorado River's Accounting Surface of 234 feet amsl. Groundwater monitoring and reporting activities required per MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would facilitate the determination of whether operational water is pumped from below the Accounting Surface and if so, that conservation actions required per MM WAT-7 (Colorado River Water Supply Plan) would be implemented.

*Surface Water and Drainage Patterns*

Operation and maintenance of the project would include the routine maintenance and occasional repair (as needed) of infrastructure installed during the construction period, including occasional re-grading and/or re-graveling of access roads. Operation and maintenance would not introduce new infrastructure or alter existing surface water and drainage patterns beyond what is completed during the construction period. As described above (see "Groundwater Recharge"), the PV panels and arrays may result in a "drip line" effect where runoff from the panels and arrays is concentrated on the lowest edge of the infrastructure, but this effect would occur as localized drainage pattern alternations. Operation and maintenance would not substantially alter existing drainage patters or result in substantial erosion, siltation, or flooding on or off site.

**State Jurisdictional Drainages.** Operational effects of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources - Vegetation) and 4.4 (Biological Resources - Wildlife) of this EIS. Potential effects during operation and maintenance are anticipated to be less than during construction due to a decreased necessity for earth-disturbing activity.

*Stormwater Drainage Systems*

Operation and maintenance of the project would not introduce any new stormwater drainage system(s). As with the potential construction effects described above, operation and maintenance activities would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Operational activities would include regular inspection and maintenance of project infrastructure. The O&M building would include a septic system and leach field, which would be permitted through Riverside County, and would be pumped regularly, with waste transported off site for disposal by a licensed waste treatment contractor. Panel washing activities would occur two to three times per year, but only the quantity of water required to remove dirt and debris from the panels would be applied (estimated to be 1.1 gallons per panel). Operation and maintenance of the project would not provide substantial additional sources of polluted runoff.

*Flood Hazard Areas*

The *Preliminary Flood Plain & Hydrology Analysis* prepared for the project area determined that surface water flows resulting from a 100-year storm event exceed three to five feet in depth (PHB & Associates 2009). The presence of project infrastructure during the operational phase of the project may result in scouring effects and/or localized re-direction of surface flow; however, as described above and in compliance with MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) and MM WAT-8 (Flood and Erosion Structure Damage Protection), project features would be designed to withstand flood flows and BMPs would be implemented during construction to avoid or minimize potential effects of flooding. Operation and maintenance of the project would not introduce new infrastructure or activities with the potential to impede or redirect flood flows such that new effects would occur.

*Water Quality*

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during operation and maintenance of the project would be minimal, characterized by road improvements or repairs as necessary to maintain access throughout the site, and the transport of vehicles and equipment throughout the site as necessary to regularly inspect project infrastructure. These activities would not introduce substantial new potential to result in soil erosion (transport) and sedimentation (delivery) that could degrade water quality. Regarding the potential for operational and maintenance activities to result in the accidental release of potentially hazardous materials, as described above, project infrastructure would be regularly inspected to minimize and/or avoid the potential for such leaks to occur.

Over the lifetime of the project, panel-washing activities would occur two to three times per year, requiring an estimated 26.02 to 39.02 afy of water, which includes the high-TDS reject water that would be generated by the RO system. This operational water would be pumped from the CVGB using the same groundwater well(s) used during construction of the project. It is anticipated that water used to wash the PV panels during project operation would need to be of a certain quality, and water obtained from the CVGB may need to be treated prior to application on the panels. However, the use of water to clean panels during operation would not degrade surface or groundwater quality in the area.

Operation and maintenance of the project would not introduce substantial new potential for water quality effects to occur.

***Indirect Effects***

The types of indirect effects to water resources that could occur as a result of operation and maintenance of Alternative 4 are the same as described above under "Construction," but are less likely to occur during operations and maintenance due to the decreased water supply requirements, decreased ground-disturbing activities, and decreased use of hazardous materials. The same mitigation measures described above would be applied to minimize or avoid potential indirect effects to water resources.

***Decommissioning***

Decommissioning of the project would occur in compliance with a decommissioning plan to be developed by the Applicant and submitted to the BLM for review and approval (enXco 2011a). Decommissioning of the project may range from temporary "mothballing" to complete removal of equipment and restoration of the land to BLM approved specifications (enXco 2011a). For the purposes of this analysis of effects on water resources, it is assumed that decommissioning would include complete removal of project infrastructure and restoration of the site.

***Direct Effects***

*Groundwater Supply and Recharge*

No water requirements associated with decommissioning the project have been identified. However, it is reasonably anticipated that a water source would be required for soil conditioning and dust control associated with earth-disturbing activities that would occur during decommissioning, including but not limited to the removal of concrete foundations, backfilling of foundation holes, and restoration of natural grade. A water source for decommissioning has not been identified; however, it is also reasonably assumed that the same water source used during construction would be used to meet decommissioning requirements. Therefore, for the purposes of this analysis it is assumed that water for decommissioning would be obtained from the CVGB.

**Overdraft and Drawdown.** Decommissioning would occur after an estimated 30- to 50-year lifespan of the project; prior to use of CVGB water for decommissioning purposes, an updated assessment of the basin's condition with regards to overdraft should be conducted. It is assumed that potential effects of decommissioning to overdraft and drawdown would be similar to the effects described above for project construction. It is anticipated that the decommissioning plan would include measures and BMPs to monitor groundwater level trends and avoid or minimize overdraft and drawdown.

**Recharge.** As described in the discussion of construction effects, new impervious surfaces resulting from new infrastructure could affect the rate and distribution of surface water percolation/infiltration to underlying groundwater; removal of this infrastructure during decommissioning activities would facilitate restoration of pre-construction recharge rates and patterns. Restoration of the site would include returning the site as close as reasonably possible to pre-construction conditions suitable for current adjacent land. Therefore, potential effects of decommissioning activities to groundwater recharge are anticipated to be beneficial.

**Construction Site Dewatering.** Decommissioning of the project would likely include excavation activities to remove infrastructure and foundations across the project site. These excavation activities would include the potential to encounter perched groundwater, or unconfined shallow groundwater, which would require dewatering activities to avoid potentially adverse effects to local groundwater resources. These effects would be the same as described above for construction of the project.

**Water Supply Reliability.** Although no water supply requirements have been identified for decommissioning of the project, it is reasonably assumed that water would be required for soil conditioning and dust control. The WSA included as Appendix E to this EIS indicates that sufficient water supply is anticipated to be available for the project, and the project would not result in adverse effects to water supply reliability.

### *Surface Water and Drainage Patterns*

Decommissioning activities would include removal of all infrastructure introduced during the construction phase, and the removal of infrastructure from the project site would facilitate restoration of the existing, pre-construction drainage patterns, characterized by ephemeral drainages which contain water only after precipitation events sufficient to produce runoff. The decommissioning plan that would be implemented for the project is anticipated to include BMPs to avoid adverse effects to surface water and drainage patterns during the decommissioning process, and to restore drainages across the site. Such BMPs may include erosion control measures to avoid and/or minimize potential adverse effects associated with alterations to surface water drainage patterns that could result in erosion or siltation on or off site. Decommissioning of the project would not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff such that erosion, siltation, or flooding on or off site would occur, and no additional mitigation measures are required.

**State Jurisdictional Drainages.** Decommissioning effects of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources - Vegetation) and 4.4 (Biological Resources - Wildlife) of this EIS. Decommissioning effects are anticipated to be greater than operational effects due to an increased need for earth-disturbing activities to remove project infrastructure.

*Stormwater Drainage Systems*

Decommissioning of the project would not introduce a new stormwater drainage system and would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Hazardous materials would be handled and disposed of during decommissioning activities, and would introduce the potential for adverse water quality effects to occur. However, all hazardous and potentially hazardous materials would be handled, stored, and disposed of in compliance with a decommissioning plan to avoid and/or minimize adverse effects, and decommissioning activities would therefore not provide substantial additional sources of polluted runoff.

*Flood Hazard Areas*

Decommissioning of the project would remove infrastructure from the site, and would remove potential effects introduced during construction of the project associated with placing structures such that flood flows could be impeded or redirected.

*Water Quality*

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during decommissioning of the project, including excavation and grading, would have the potential to result in erosion and sedimentation that could degrade water quality. This effect would be most likely to occur if a storm event occurs during decommissioning activities, while disturbed soils are exposed and/or have not yet been re-vegetated. It is anticipated that the project's decommissioning plan would require BMPs and stipulations similar to those applied during construction activities, including as related to the proper handling and storage of potentially hazardous materials. Potential water quality effects would be similar during decommissioning as during construction.

### *Indirect Effects*

The types of indirect effects to water resources that could occur as a result of decommissioning Alternative 4 are the same as described above under "Construction." The same mitigation measures described above and presented below would be applied to minimize or avoid potential indirect effects to water resources.

### ***Mitigation Measures***

The mitigation measures listed below are required to reduce effects related to water resources.

**MM WAT-1** **Demonstrate compliance with water quality permits.** Prior to construction, the Applicant shall submit satisfactory evidence to the BLM and the Riverside County Department of Planning and Building, as applicable, that all agencies with jurisdiction over the project have been contacted and whether or not each agency requires a permit associated with water resources for the project. Such agencies and associated permits include but are not limited to those listed below.

- California Department of Fish and Game (Streambed Alteration Agreement)
- U.S. Army Corps of Engineers (Clean Water Act Section 404)
- State Water Resources Control Board / Colorado River Basin Regional Water Quality Control Board (Clean Water Act Section 402/401 permits; Waste Discharge Requirements)

Where a permit is required, the Applicant shall provide a copy of all the conditions required by that agency to BLM, for actions on BLM lands, and to the Riverside County Department of Planning and Building, for actions on County lands. The BLM and the County, as applicable, shall review these conditions for consistency with proposed plans. During construction, the Environmental Monitor shall be aware of these other agency conditions and if non-compliance is observed, shall contact the affected agency. For post-construction measures, the Environmental Monitor shall notify the affected agency should non-compliance be observed. The Applicant shall maintain and make available on site at all times an approved copy of all required permits.

**MM WAT-2** **Alternative Water Source and Groundwater Offsets.** Prior to the onset of construction, the Applicant shall identify a water source alternative to the Chuckwalla Valley Groundwater Basin (CVGB) for some or all of the water required for construction, operation, and decommissioning of the project. The alternative water source may be any source other than the CVGB. If a viable alternative water source is identified, the Applicant shall verify in writing to the BLM that sufficient water supply is available from the alternative source to meet the project's needs. Any water used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the renewable energy project or its mitigation measures, as specified in the approved Plan of Development.

If CVGB water is to be used to meet any of the project's water supply requirements, the Applicant shall identify groundwater offsets for the project's share of groundwater pumping on an acre-foot per acre-foot basis during any year that the CVGB is projected to be in overdraft, as defined in Table 4.20-5 (Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)) of this EIS and assessed in the Water Supply Assessment included as Appendix E. The project owner may elect to provide alternative groundwater overdraft projections upon which to rely, in which case a complete Water Supply Assessment including all necessary modeling assumptions in accordance with Senate Bill 610 shall be submitted to the BLM and reviewed and approved by the BLM hydrologist.

As determined in the Water Supply Assessment for the proposed project, overdraft conditions in the CVGB are anticipated to occur during each year of project operations, projected through 2043, to varying degrees of severity and decreasing over time. The anticipated overdraft conditions are projected to occur regardless of the DHSP, as the project's maximum operational pumping requirement is 39 afy, while the negative groundwater budget projections exceed 39 afy during each year. However, in order to ensure that the proposed project does not contribute to overdraft conditions, during each year that overdraft conditions are anticipated to occur the Applicant shall implement one or more of the measures listed below and verify in an annual report to the BLM that an amount of groundwater equal to that consumed by the project is conserved within the CVGB on an acre-foot per acre-foot basis.

Implement a Forbearance and Fallowing Program, wherein the Applicant enters into a contractual agreement with willing land owner(s) and/or lessee(s) to fallow fields which are actively irrigated. The contract shall specify the duration of fallowing, during which time no water may be applied to the contracted field. Each field which is fallowed under this program must be located within the CVGB and must receive its water supply from the CVGB. The land owner(s) and/or lessee(s) involved cannot be simultaneously contracting with another entity to fallow the same fields, unless agreed upon by all parties.

Participate in a Forbearance and Fallowing Program implemented within the CVGB by another entity, such as but not limited to the following: Metropolitan Water District (MWD), Palo Verde Irrigation District (PVID), Imperial Irrigation District (IID), and/or other water districts in the project area. Each field which is fallowed through a collaborative effort towards the purpose of satisfying this mitigation measure must be located within the CVGB and must receive its water supply from the CVGB.

In order to satisfy the purpose of this measure, the Applicant must provide documentation to the BLM which verifies that the same quantity of CVGB water which is consumed by the proposed project during an overdraft year is also conserved on an acre-foot per acre-foot basis, or that the project would not pump CVGB water during overdraft years. This documentation shall be provided by the Applicant to the BLM for each year that overdraft conditions are projected to occur. The Environmental Monitor or BLM project manager shall verify that the alternative water source is secured via contract prior to the onset of construction and/or that groundwater offsets are secured and implemented if CVGB water is to be used for any portion of the project's water supply requirements, per the requirements described above.

If water pumped from the CVGB would be used in conjunction with an alternative water source, the Environmental Monitor shall verify that all groundwater monitoring and reporting requirements identified in MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) and MM WAT-7 (Colorado River Water Supply Plan) are implemented; however, if an alternative water source would be used to meet all of the project's water requirements and the project does not pump any groundwater from the CVGB, or any basin tributary to the CVGB, then MM WAT-3 and MM WAT-7 would not be necessary.

Potential impacts associated with the delivery of an off-site water source to the proposed DHSP site could include effects to transportation and public access, noise, air quality, energy and minerals, and climate change. The daily water demand during construction of the project is estimated to range from a low of 125,000 gallons per day (gpd) to a peak of an estimated 600,000 gpd. Assuming the project used of 12,000 gallon trucks to transport the water, between 10 and 50 round trip truck trips would be required to transport the water to the site during construction. During operations, the project would use between 26 and 39 afy. This would require between 2 to 3 round trip truck trips per day, if the CVGB were in overdraft and all the water consumed during a year of operation were trucked from offsite.

- **Transportation and Public Access.** The traffic study for the DHSP noted that the estimated truck delivery for the project varied throughout construction but was estimated to average 20 round trip truck trips each day. As stated above, the daily water demand would increase this daily truck traffic by 10 to 50 round trips. This increase in truck traffic would potentially impact the road level of service (LOS) and increase the roadway damage and hazards. However, as noted in Section 4.18.6, the only project trips relevant to the quantitative traffic analysis and to the road level of service are those that occur during the AM and PM peak traffic hours. While it is anticipated that multiple daily truck trips would be required to transport the off-site water to the DHSP site, the truck trips would be spaced throughout the day. Typical construction work schedules are expected to be 8 hours per day Monday through Friday. This would result in between 1 to 6 additional round trip truck trips per hour. Given the existing LOS, LOS A, and the estimated LOS with the DHSP, LOS B, an additional 1 to 6 round trip truck trips per hour would not be expected to reduce the level of service during the AM and PM peak traffic hours. During operations, an additional 2 to 3 round trip truck trips would be required per day and would not be expected to impact the existing LOS.
- **Noise.** Water trucks would travel north along SR-177 and then continue north along Kaiser Road to the main entrance of the project site. Water trucks would require between 10 to 50 round trip truck trips per day which would increase the hourly truck traffic by between 1 to 6 additional round trip truck trips. The additional truck trips would increase traffic noise levels along Kaiser Road which are already considered to be noticeable with the DHSP construction traffic; see Section 4.12.6. At 50 feet from the centerline of Kaiser Road, noise levels from the DHSP traffic and the additional 1 to 6 round trip truck trips per hour would be within Riverside County's conditionally acceptable range for rural residential land uses. During operations, an additional 2 to 3 round trip truck trips would be required per day and would be expected to result in a minimal increase in noise.

- **Air Quality.** Water truck trips would result in exhaust air pollutant emissions as a result of motor vehicle fuel combustion. Fugitive dust emissions would be generated from vehicle trips on paved/unpaved roads. The emissions would contribute to the exceedance of the emissions thresholds for VOC, NOx, CO, and PM10. However, with the implementation of required mitigation for the DHSP, this impact would be reduced. Mitigation measures for the DHSP would require the Applicant to develop a Fugitive Dust Control Plan in compliance with SCAQMD Rule 403 to reduce PM10 and PM2.5 emissions during construction. During operations, an additional 2 to 3 round trip truck trips would be required per day and would be expected to result in a minimal increase in air emissions.
- **Energy and Minerals**. An estimated 10 to 50 round trip truck trips per day during construction and an estimated 2 to 3 round trip truck trips per day during operations, would also require the use of energy resources in the form of transportation and potentially energy used to pump the water. Fuels for the water trucks and potentially pumps are readily available in the project study area, and the consumption of such resources during construction would not constitute a substantial effect.
- **Climate Change**. Water truck trips would result in direct greenhouse gas emissions from fuel combustion during construction and operations. The total annualized direct GHG emissions from the water truck trips would occur with those of construction of the DHSP which are well below the presumptive threshold for direct emissions established in the Council on Environmental Quality's draft guidance for federal agencies; see Section 4.5.7. Therefore, the water truck trips would not result in an unavoidable adverse GHG effects.

If the project's water supply is provided as groundwater pumped from an off-site well within the CVGB, or as some other off-site water source, it would trucked to the project site and stored in an on-site storage tank(s). If an off-site groundwater supply is used for the project, potential impacts associated with traffic, noise, and air quality would be comparable to the potential impacts associated with use of an on-site well(s), as water obtained on-site would need to be transported and delivered to specific on-site locations. If an off-site non-groundwater supply is used for the water (such as purchased from MWD or another local purveyor), potential effects associated with transporting the supply to the project site would be comparable to as described for an off-site groundwater supply.

**MM WAT-3** **Groundwater Drawdown Monitoring and Reporting Plan.** If groundwater is to be pumped for consumptive use in this project from either an onsite well or an offsite well that extracts water from the CVGB, the Applicant shall develop and implement a Groundwater Monitoring and Reporting Plan prior to the onset of construction of the project. In the preparation and implementation of this plan, the Applicant shall coordinate with the BLM and with the Colorado River Basin RWQCB. The Groundwater Monitoring and Reporting Plan shall be prepared by a qualified hydrogeologist and submitted by the Applicant to the BLM for approval, and to the RWQCB for review and comment.

The Groundwater Monitoring and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels, water quality, and flow. Monitoring shall be performed during pre-construction, construction, and operation of the project, with the intent to establish pre-construction and project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include locations up-gradient, lateral, and down-gradient of all project supply wells and a minimum of three off-site down-gradient wells. Water quality monitoring shall include annual sampling and testing for Total Dissolved Solids (TDS), which include minerals, salts, and metals dissolved in water. Water quality samples shall be drawn from project supply wells, one up-gradient well, and a minimum of two down-gradient offsite wells.

The Groundwater Monitoring and Reporting Plan shall include a schedule for submittal of quarterly data reports by the Applicant to the BLM, for the duration of the construction period. These quarterly data reports shall be prepared and submitted to the BLM for review and approval, and shall include water level monitoring data (trend analyses) from all monitoring wells, including the up-gradient, lateral, and down-gradient wells described above. Based on the results of the quarterly reports, the Applicant and the BLM shall determine if the project's pumping activities have resulted in water level decline of five feet or more below the baseline trend at any of the monitoring wells, including nearby private wells. If drawdown of five feet or more occurs at off-site wells, the Applicant shall immediately reduce groundwater pumping until water levels stabilize or recover, sustaining drawdown of less than five feet. Alternatively, the Applicant shall provide compensation to the well owner, including reimbursement of increased energy costs, or deepening the well or pump setting.

The Groundwater Monitoring and Reporting Plan shall also include a schedule for submittal of annual data reports by the Applicant to the BLM, for the first five years of the project (including the construction period). These annual data reports shall be prepared and submitted to the BLM for review and approval, and shall include at a minimum the following information:

- Daily usage, monthly range, and monthly average of daily water usage in gallons per day;
- Total water used on a monthly and annual basis in acre-feet; summary of all water level data; and
- Identification of trends that indicate potential for off-site wells to experience deterioration of water level.

The BLM shall determine whether groundwater wells surrounding the project site and project supply well(s) are affected by project activities in a way that requires additional mitigation and, if so, shall determine what measures are needed. After the first five years of the project, the Applicant and the BLM shall jointly evaluate the effectiveness of the Groundwater Monitoring and Reporting Plan and determine if monitoring frequencies or procedures should be revised or eliminated.

The siting, construction, operation, maintenance, and remediation of any groundwater well associated with the project shall conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90.

**MM WAT-4** **Surface Water Protection Plan and Drainage Design Specifications.** A Surface Water Protection Plan (SWPP) shall be developed for the project and shall include BMPs to ensure that drainage design at the project site would minimize potential adverse effects associated with groundwater recharge, drainage pattern alterations, and water quality. The SWPP shall achieve the same objectives as a Stormwater Pollution Prevention Plan (SWPPP) under the Clean Water Act (CWA), and the SWPP may substitute for a SWPPP if the project is not subject to Section 402 of the CWA. The SWPP shall be adhered to during construction and operation of the project, as applicable. BMPs required by the SWPP shall include, at a minimum, the following:

- Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) shall be installed before clearing and grading begins;
- Mulching, seeding, or other suitable stabilization measures shall be used to protect exposed areas during construction activities;
- Groundcover for the new substation shall be comprised of a pervious or high-roughness material (for example, gravel) to the maximum extent feasible;
- Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimic the natural condition as much as possible;
- Drainage from impervious surfaces such as roads, driveways, and buildings shall be directed into channel(s), drainage basin(s), or depression(s), as applicable to perpetuate the natural drainage patterns as much as possible;
- Mass grading and contouring shall be done in a way to direct surface runoff towards the above-referenced basin(s) and/or depression(s);
- Straw wattles (or comparably effective devices [as determined by the on-site Civil Engineer, in consultation with the Environmental Monitor]) shall be placed on the downslope sides of the proposed work which would direct flows into the above-referenced basin(s) and/or depression(s);
- All erosion control materials shall be biodegradable and natural fiber;
- During construction/ground disturbing activities and operation, all vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground, and to ensure that any leaks or spills during maintenance or storage can be easily and properly removed;
- Prior to and during construction, an environmental training program shall be established to communicate environmental concerns and appropriate work

practices, including spill prevention and response measures to all field personnel; and

- Storage of fuels and hazardous materials shall be prohibited within 200 feet of surface water features and private groundwater supply wells, and within 400 feet of community or municipal groundwater supply wells (if it is determined that such wells exist on or in close proximity to the project site).

Notice of Intent (NOI) packages shall be filed by the Applicant with the State Water Resources Control Board (SWRCB) and the Colorado River Basin Regional Water Quality Control Board (RWQCB), and a Waste Discharge Identification Number (WDID) for the project shall be obtained prior to the issuance of construction permits. The SWPP shall be stored at the construction site for reference by construction personnel and for inspection review. All be BMPs required by the SWPP shall be checked and maintained regularly and after all larger storm events. All remedial work shall be done immediately after discovery to ensure that erosion/sedimentation control devices remain in good working order. Proper implementation shall be verified by the Environmental Monitor.

**MM WAT-5** **Construction Site Dewatering Management.** If groundwater is unexpectedly encountered during construction, operation, or decommissioning of the project, dewatering activities shall be performed in compliance with the California Stormwater Quality Association (CASQA) Handbook for Construction or other similar guidelines, as approved by the BLM. The Applicant shall notify the BLM and the Colorado River Basin RWQCB at the onset of dewatering activities, and shall submit written descriptions of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface, upon the completion of dewatering activities. The Environmental Monitor shall regularly inspect grading activities for groundwater exposure. Should groundwater be encountered, compliance with dewatering efforts shall be verified by the Environmental Monitor.

**MM WAT-6** **Drought Water Management and Water Conservation Education Programs.** Prior to the onset of construction of the project, a Drought Water Management Program shall be prepared by the Applicant and submitted to the BLM for approval. The Drought Water Management Program shall provide guidelines on how all future water use will be managed during "severe" drought year(s). If a "severe" drought condition occurs during construction or operation of the project, restricted water usage measures shall be implemented per the Drought Water Management Program until it is shown satisfactorily to the BLM that the "severe" drought condition no longer exists. The Drought Water Management Program shall include at a minimum the following measures:

- The definition of a "severe" drought year (as defined by the National Oceanic and Atmospheric Administration's (NOAA) Palmer Drought Severity method or other similarly recognized methodology);
- Identification of general measures available to reduce water usage for future development (to be refined as needed for each use approved);

- Identification of specific measures to be applied for landscape watering; and
- Determination of appropriate early triggers to determine when "severe" drought conditions exist and process for initiating additional water conservation measures.

In addition to the Drought Water Management Program and prior to the onset of construction of the project, the Applicant shall also develop a Water Conservation Education Program and submit this program to the BLM for review and approval. The Water Conservation Education Program shall be developed by an appropriate expert in water conservation, and shall include guidance for all future operators and employees of the project on how to adjust water usage during drought periods. The Water Conservation Education Program shall specify the means by which this guidance will be disseminated to any future operators and employees of the project.

For any year that a “severe drought” state has been recognized, the Applicant shall submit a letter to the BLM by November 1 of that year identifying what measures were implemented to conserve water and to provide water conservation education, as well as the effectiveness of such measures. The Drought Water Management Program and Water Conservation Education Program shall be implemented throughout the construction, operation, and decommissioning phases of the project.

**MM WAT-7** **Colorado River Water Supply Plan.** The Applicant shall prepare a Colorado River Water Supply Plan and submit this Plan to the BLM and the Colorado River Basin RWQCB for review and approval prior to the onset of groundwater pumping for the project. The purpose of the Colorado River Water Supply Plan is to ensure that if the project consumes any Colorado River water, an equal amount of water will be “replaced” within the watershed through the implementation of conservation actions.

The Colorado River Accounting Surface has been identified at 234 feet above mean sea level (amsl) in the project area. If the groundwater monitoring activities and quarterly data reports required in compliance with MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) indicate that project-related groundwater pumping draws water from below 234 feet amsl, the Applicant shall record the quantity of groundwater pumped from below 234 feet amsl and shall implement activities which result in the conservation of water in an amount equal to the amount of water pumped from below 234 feet amsl.

The Colorado River Water Supply Plan must include the following information:

- Identification of water offset activities and associated water source(s) to replace the quantity of water diverted from the Colorado River over the life of the project on an acre foot per acre foot basis;
- Demonstration of how water diverted from the Colorado River will be replaced for each identified activity;

- Demonstration of the Applicant's legal entitlement to the water or ability to conduct the activity;
- Discussion of whether any governmental approval of the identified activities will be needed, and, if so, whether that additional approval will require compliance with CEQA or NEPA;
- An estimated schedule of completion for each identified activity;
- Performance measures that would be used to evaluate the amount of water replaced by each identified activity; and
- Monitoring and Reporting Plan outlining the steps necessary and proposed frequency of reporting to show that each identified activity is achieving the intended benefits and replacing Colorado River diversions.

Measures of water conservation specified in the Colorado River Water Supply Plan may include but are not limited to those listed below, and should be considered in the following order of priority:

- Payment for irrigation improvements in Palo Verde Irrigation District (PVID);
- Purchase of water allotments within the Colorado River Basin that will be held in reserve;
- Use of tertiary treated water;
- Implementation of water conservation programs in the floodplain communities of the Chuckwalla, Valley Groundwater Basin, the Palo Verde Mesa Groundwater Basin, and/or Colorado River; and
- Participation in the U.S. Bureau of Land Management's (BLM) Tamarisk Removal Program.

If the Applicant has filed an application to the U.S. Bureau of Reclamation (USBR) to obtain an allocation of water from the Colorado River, this allocation(s) can be used to satisfy some or all of the water conservation offsets on an acre-foot per acre-foot basis. Use of any other options for water offsets will require the Applicant to demonstrate to the satisfaction of the BLM and the Colorado River Basin RWQCB that the appropriate amounts of water will be conserved.

If the project does not result in diversion of Colorado River water (via pumping groundwater from below 234 feet amsl) it will not be necessary to implement the Colorado River Water Supply Plan; however, the Plan must be approved prior to project-related groundwater pumping is initiated to ensure that appropriate conservation measures are implemented in a timely manner, if necessary. The Colorado River Water Supply Plan is separate from the Groundwater Drawdown Monitoring and Reporting Plan (MM WAT-3) and the Drought Water Management and Water Conservation Education Programs (MM WAT-6), and it must be developed, reviewed, approved of, and implemented as a separate plan. Compliance will be verified by the Environmental Monitor.

**MM WAT-8 Flood and Erosion Structure Damage Protection.** Aboveground project features shall be located outside of known watercourses, and shall be designed and maintained to withstand flooding and erosion hazards. Although some project features may need to be placed within 100-year floodplain boundaries, or Flood Hazard Areas identified by the Federal Emergency Management Agency, they shall be designed per applicable floodplain development guidelines, including measures such as specially designed footings to withstand flooding associated with a 100-year flood event. Channel design for flood control along the project perimeter shall be sized and designed to minimize scour and disruption to upstream and downstream hydrology, including measures to prevent headcutting, migration of channels, erosion, and downstream sedimentation, under conditions equivalent to a 100-year flood. Riprap shall be placed and maintained at the base of project infrastructure and foundations to slow the velocity of stormwater runoff. Compliance will be verified by the Environmental Monitor.

**MM WAT-9 Accidental Spill Control and Environmental Training.** Prior to the onset of construction of the project, the following specifications must be provided by the Applicant to the BLM: define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. The Applicant shall also prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. These specifications may be included in the Surface Water Protection Plan (SWPP) described in MM WAT-4, or may be included as a separate plan. Compliance will be verified by the Environmental Monitor at the time of construction.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects to water resources would result from implementation of Alternative 4.

### 4.20.7 Alternative 5 – Solar Project Excluding WHMA

Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, except that project components would be excluded from the WHMA.

***Construction***

*Groundwater Supply and Recharge*

The quantity of water required during construction of Alternative 5 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development, to determine that dust suppression requires approximately 0.33 to 0.41 afy of water per acre of site development. Alternative 5 would develop 1,161 acres, requiring approximately 384.4 to 480.5 afy of water for dust suppression, which is approximately four percent less than the water supply requirement associated with Alternative 4; as such, Alternative 5 would require 15.6 to 19.5 afy less than Alternative 4.

Table 3.20-2 identifies that the safe yield of the CVGB is estimated to be 2,623; as such, sufficient groundwater supply is available to meet the construction water requirements of Alternative 5. Although the construction water requirement associated with Alternative 5 is less than that for Alternative 4, this difference is minimal when compared to overall construction water requirements, and the nature and magnitude of potential effects to groundwater supply and recharge under Alternative 5 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 5 in order to minimize or avoid potential effects to groundwater supply and recharge.

#### *Surface Water and Drainage Patterns*

Alternative 5 would encompass approximately 1,161 acres, 47 fewer than Alternative 4, and would clear 107 acres of vegetation, the same as Alternative 4. The area permanently covered by at-grade items under Alternative 5 would be 10 acres, which is also the same as Alternative 4. Therefore, although Alternative 5 would avoid development on 47 acres of the site, the amount of new impervious surfaces and compacted soils introduced under Alternative 5 would be the same as described above for Alternative 4. Potential impacts to surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 5 in order to minimize or avoid potential effects on surface water and drainage patterns.

#### *Stormwater Drainage Systems*

No stormwater drainage system exists at the Alternative 5 site. As with Alternative 4, construction of Alternative 5 would include implementation of a SWPP, including BMPs specified in MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 5 as under Alternative 4.

#### *Flood Hazard Areas*

The removal of 47 acres from development under Alternative 5 would avoid the need for construction activities to occur across 47 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 5 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

#### *Water Quality*

Construction of Alternative 5 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 47 acres that would be avoided. However, the same types of construction activities would occur under this alternative, and with consideration to the overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 5 would be the same as under Alternative 4.

### ***Operation and Maintenance***

Operational and maintenance activities required under Alternative 5 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

***Decommissioning***

Decommissioning of Alternative 5 would not require the removal of infrastructure on the WHMA portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation on the WHMA portion of the site. With consideration to the overall project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

***Mitigation Measures***

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 5.

***Residual Impacts and Unavoidable Adverse Effects***

No unavoidable adverse effects on water resources would result from implementation of Alternative 5.

### 4.20.8 Alternative 6 – Reduced Footprint Solar Project

Similar to Alternative 5, Alternative 6 would also develop a smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the 164-acre southern parcel of the project.

***Construction***

*Groundwater Supply and Recharge*

The quantity of water required during construction of Alternative 6 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development, as with Alternative 5. Alternative 6 would develop 1,044 acres, requiring approximately 348.3 to 435.4 afy of water for dust suppression, which is 51.6 to 64.6 afy less, or approximately 13 percent less, than Alternative 4. The estimated safe yield of the CVGB is to be 2,623; as such, sufficient groundwater supply is available to meet the construction water requirements of Alternative 6. Although the construction water requirement associated with Alternative 6 is approximately 13 percent less than that for Alternative 4, this difference is not substantial when compared with overall construction water requirements, and the nature and magnitude of potential effects on groundwater supply and recharge under Alternative 6 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 6 in order to minimize or avoid potential effects on groundwater supply and recharge.

*Surface Water and Drainage Patterns*

Alternative 6 would encompass approximately 1,044 acres, 164 fewer than Alternative 4. Construction of Alternative 6 would clear slightly fewer acres of vegetation than Alternative 4, and result in permanent coverage by at-grade items over slightly fewer acres than Alternative 4. These differences in ground disturbance and infrastructure would not substantially alter potential effects on surface water and drainage patterns. Potential effects on surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 6 in order to minimize or avoid potential effects on surface water and drainage patterns.

*Stormwater Drainage Systems*

No stormwater drainage system exists at the Alternative 6 site. As with Alternative 4, construction of Alternative 6 would include implementation of a SWPP, including BMPs specified in MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 6 as under Alternative 4.

*Flood Hazard Areas*

The removal of 164 acres from development under Alternative 6 would avoid the need for construction activities to occur across 164 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 6 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

*Water Quality*

Construction of Alternative 6 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 164 acres that would be avoided. However, the same types of construction activities would occur under this alternative and with consideration to the overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 6 would be the same as under Alternative 4.

***Operation and Maintenance***

Operational and maintenance activities required under Alternative 6 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

***Decommissioning***

Decommissioning of Alternative 6 would not require the removal of infrastructure on the southern portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation. With consideration to the overall project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

***Mitigation Measures***

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 6.

### Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects on water resources would result from implementation of Alternative 6.

## 4.20.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Construction activities would occur on the same schedule as for Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the 155-acre southern parcel of the project.

### Construction

#### Groundwater Supply and Recharge

The quantity of water required during construction of Alternative 7 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development. Alternative 7 would develop 1,044 acres, requiring approximately 348.3 to 435.4 afy of water for dust suppression, which is 51.6 to 64.6 afy less, or approximately 13 percent less, than Alternative 4. The estimated safe yield of the CVGB is to be 2,623; as such, sufficient groundwater supply is available to meet the construction water requirements of Alternative 7. Although the construction water requirement associated with Alternative 7 is approximately 13 percent less than that for Alternative 4, this difference is not substantial when compared with overall construction water requirements, and the nature and magnitude of potential effects on groundwater supply and recharge under Alternative 7 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 7 in order to minimize or avoid potential effects on groundwater supply and recharge.

#### Surface Water and Drainage Patterns

Alternative 7 would encompass approximately 1,044 acres, 164 fewer than Alternative 4. Construction of Alternative 7 would clear slightly fewer acres of vegetation than Alternative 4, and result in permanent coverage by at-grade items over slightly fewer acres than Alternative 4. These differences in ground disturbance and infrastructure would not substantially alter potential effects on surface water and drainage patterns. Potential effects on surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 7 in order to minimize or avoid potential effects on surface water and drainage patterns.

#### Stormwater Drainage Systems

No stormwater drainage system exists at the Alternative 7 site. As with Alternative 4, construction of Alternative 7 would include implementation of a SWPP, including BMPs specified in MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 7 as under Alternative 4.

*Flood Hazard Areas*

The removal of 164 acres from development under Alternative 7 would avoid the need for construction activities to occur across 164 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 7 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

*Water Quality*

Construction of Alternative 7 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 164 acres that would be avoided. However, the same types of construction activities would occur under this alternative, and with consideration to the overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 7 would be the same as under Alternative 4.

#### *Operation and Maintenance*

Operational and maintenance activities required under Alternative 7 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

#### *Decommissioning*

Decommissioning of Alternative 7 would not require the removal of infrastructure on the southern portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation. With consideration to the overall project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

#### *Mitigation Measures*

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 7.

#### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects on water resources would result from implementation of Alternative 7.

### 4.20.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no water resources effects related to construction, operations and maintenance, or decommissioning of the gen-tie line would occur.

#### *Mitigation Measures*

No mitigation measures for water resources are required for Alternative A.

***Residual Impacts and Unavoidable Adverse Effects***

No water resources effects would result from the implementation of Alternative A.

### 4.20.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm project by sharing the approved transmission towers. The Desert Sunlight approved gen-tie has not yet been constructed, and Alternative B would require construction of this transmission line.

***Construction***

*Direct Effects*

Construction of the gen-tie would require a water supply of 6.25 afy for dust abatement. This water requirement was not included in the discussion of water supply impacts under Alternative 4, but it is addressed as a cumulative project in the WSA, because it would either be constructed under the proposed DHSP or the Desert Sunlight project. As projected in the WSA and discussed under Alternative 4, it is anticipated that the CVGB could be affected by overdraft conditions during implementation of the project. As such, additional usage of the CVGB could contribute to overdraft. However, the gen-tie water requirement of 6.25 afy is a one-time water use that would occur during the short-term construction period; this quantity of water is minimal and would not substantially affect groundwater supply or supply reliability.

Construction of Alternative B would require ground disturbance at each tower location, pulling station location, and dead-end pole location. This ground disturbance would introduce the potential for soil erosion and sedimentation which could result in water quality degradation to occur. The construction of towers would also introduce the potential for an accidental spill or leak of hazardous materials to occur, associated with the use of heavy vehicles and equipment required for construction of this infrastructure.

*Indirect Effects*

No indirect effects to water resources would occur as a result of construction of Alternative B.

***Operation and Maintenance***

*Direct Effects*

Operation and maintenance of the gen-tie line proposed under Alternative B would not require a water source, and would not include earth-disturbing activities or the handling/use of hazardous materials that would have potential to result in water resources effects. No direct effects would occur.

*Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative B.

## Decommissioning

### *Direct Effects*

Decommissioning of the gen-tie line under Alternative B would be limited to the removal of the transmission cables from the existing towers. A water supply is not anticipated to be required for these activities. Earth-disturbing activities and the use of vehicles and equipment along the gen-tie line would have potential to result in water resources effects associated with the use of vehicles and equipment that could leak hazardous materials.

### *Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative B.

## Mitigation Measures

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative B occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

## Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

## 4.20.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same, or a slightly larger, ROW. The same number of towers in a nearly identical alignment to that of First Solar's towers would be constructed. As described above for Alternative B, the Desert Sunlight project is not included in baseline conditions and therefore, Alternative B includes construction of the required gen-tie infrastructure. Construction, operation, and maintenance of Alternative C would be identical to that described for Alternative B.

## Construction

### *Direct Effects*

As described under Alternative B, construction of the gen-tie would require 6.25 afy of water for dust abatement. This water requirement was not included in the discussion of water supply impacts under Alternative 4, but it is addressed as a cumulative project in the WSA. It is anticipated that the CVGB could be affected by overdraft conditions during implementation of the project, and additional usage of the CVGB could contribute to overdraft. However, the gen-tie water requirement of 6.25 afy is a one-time water use that would occur during the short-term construction period; this quantity of water is minimal and would not substantially affect groundwater supply or supply reliability.

Construction of Alternative C would require ground disturbance at each tower location, pulling station location, and dead-end pole location. This ground disturbance would introduce the potential for soil erosion and sedimentation which could result in water quality degradation to occur. The construction of towers would also introduce the potential for an accidental spill or leak of hazardous materials to occur, associated with the use of heavy vehicles and equipment required for construction of this infrastructure.

### *Indirect Effects*

No indirect effects to water resources would occur as a result of construction of Alternative C.

## ***Operation and Maintenance***

### *Direct Effects*

Operation and maintenance of the gen-tie line proposed under Alternative C would not require a water source, and would not include earth-disturbing activities or the handling/use of hazardous materials that would have potential to result in water resources impacts. No direct effects to water resources would occur.

### *Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative C.

## ***Decommissioning***

### *Direct Effects*

Decommissioning of Alternative C involve the removal of gen-tie infrastructure, including all towers and transmission cables. A small water supply may be required for dust suppression during these activities. Earth-disturbing activities and the use of vehicles and equipment along the gen-tie line would have potential to result in water resources effects associated with the use of vehicles and equipment that could leak hazardous materials.

### *Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative C.

## ***Mitigation Measures***

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative C occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

## ***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

### 4.20.13 Alternative D – Cross-Valley Alignment

***Construction***

Construction of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

***Direct Effects***

Due to slightly less ground disturbance required under Alternative D, there would also be slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

***Indirect Effects***

No indirect effects to water resources would occur as a result of construction of Alternative D.

***Operation and Maintenance***

Operation and maintenance of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

***Direct Effects***

As with construction effects, the smaller amount of ground disturbance that would occur under Alternative D would also result in slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

***Indirect Effects***

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative D.

***Decommissioning***

Decommissioning of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

***Direct Effects***

As with construction effects, the smaller amount of ground disturbance that would occur under Alternative D would also result in slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

***Indirect Effects***

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative D.

### *Mitigation Measures*

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative D occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

## 4.20.14 Alternative E – New Cross-Valley Alignment

### *Construction*

#### *Direct Effects*

Potential effects of construction of Alternative E to water resources would be the same as discussed above for Alternative D.

#### *Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative E.

### *Operation and Maintenance*

#### *Direct Effects*

Potential effects of operation and maintenance of Alternative E to water resources would be the same as discussed above for Alternative D.

#### *Indirect Effects*

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative E.

### *Decommissioning*

#### *Direct Effects*

Potential effects of decommissioning of Alternative E to water resources would be the same as discussed above for Alternative D.

#### *Indirect Effects*

No indirect effects to water resources would occur as a result of decommissioning of Alternative E.

### *Mitigation Measures*

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative D occurs in compliance with all applicable laws and regulations relevant to water quality, and

MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

### 4.20.15 Cumulative Effects

Cumulative effects on water resources resulting from the project or an alternative would occur if similar effects of other projects located within the geographic extent of this analysis, as shown in Table 4.20-3, were to occur during the same time period as those effects of the DHSP, including during the construction, operation and maintenance, and decommissioning phases.

**Table 4.20-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Water Resources | Chuckwalla Valley Groundwater Basin | Water supply, surface drainage patterns; flooding and earth-disturbing activities that result in erosion and sedimentation | • Palen Solar Power Project<br>• First Solar Desert Sunlight<br>• Red Bluff Substation<br>• Devers-Palo Verde No. 2 Transmission<br>• Colorado River Substation Expansion<br>• Blythe Energy Transmission Line<br>• Desert Southwest Transmission Line<br>• Eagle Crest Pumped Storage Startup<br>• Genesis Solar Energy Project<br>• Blythe Energy Transmission Line<br>• Desert SW Transmission |

***Geographic Scope***

The geographic extent of this cumulative effects analysis for water resources effects under the proposed project and alternatives is the CVGB. This is an appropriate scope of analysis because the proposed project and alternatives are located within the surface recharge area of the CVGB, and water supply requirements associated with the construction, operation and maintenance, and decommissioning of the proposed project or an alternative would be met with water pumped from the CVGB. As mentioned above, a cumulative effect to water resources could occur if other projects within the geographic scope of this analysis occur during the same time period as effects of the proposed project or an alternative.

The temporal scope of this cumulative analysis is considered the period within which a water resources effect of the proposed project or an alternative is actively present. For instance, if project-related groundwater pumping results in overdraft conditions, a cumulative effect could occur if another project within the geographic scope also contributes to overdraft conditions to the affected groundwater resource while the project-related overdraft effect is present. The temporal scope of this analysis is discussed further in the following sections.

### *Cumulative Effects Analysis*

Existing cumulative conditions relevant to water resources are comprised of projects which previously and/or currently: utilize local groundwater resources as a project water supply; substantially alter surface drainage patterns; result in flooding associated with new impervious areas and/or the placement of permanent infrastructure; include earth-disturbing activities that result in erosion and sedimentation; or result in hazards and/or inundation by mudflow. Table 4.1-1 (Existing Projects Along the I-10 Corridor (Eastern Riverside County)) identifies cumulative projects within the geographic scope of analysis for the DHSP; other projects are considered in this cumulative analysis as relevant to water resources.

#### *Groundwater Supply and Recharge*

Cumulative effects to groundwater supply and recharge during construction, operation and maintenance, or decommissioning of the proposed project or an action alternative would occur if other projects drawing groundwater from the CVGB would contribute to long-term overdraft conditions while the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) is pumping groundwater for construction requirements, and/or if other projects within the surface recharge area of the CVGB introduce substantial new areas of impervious surfaces such that groundwater recharge rates and/or patterns are substantially altered. The effects analysis discussions provided in Sections 4.20-3 through 4.20-12 indicate that potential effects of the proposed project or an action alternative to groundwater supply and recharge resulting from new impervious areas, including compacted soils, would be site-specific and not substantial; therefore, cumulative effects to groundwater supply and recharge are not anticipated to result from new impervious areas. With regards to the pumping of groundwater from the CVGB, the proposed project or an action alternative would draw water from the CVGB over the lifetime of the project, as would other projects within the geographic extent of analysis.

Table 3.20-2 (Estimated Budget for the Chuckwalla Valley Groundwater Basin) indicates that there are approximately 2,623 afy of water available for use from the CVGB, accounting for construction water demand of the Desert Sunlight project but not accounting for water demands of other cumulative projects in the area (as previously described, Desert Sunlight contributes to environmental baseline conditions for water resources because this project was under construction at the time of publishing the Notice of Intent for the DHSP).

Table 4.20-4 (Estimated Water Requirements of Cumulative Projects), below, lists the water demands associated with construction and operation of other projects within the cumulative scope that are anticipated to pump groundwater from the CVGB within the same timeframe as the proposed project or an alternative. Table 4.20-3 indicates that between 2010 and 2043, water demand associated with cumulative projects ranges from a low of 620 afy in 2010 to a high of 10,050.9 afy in 2014. In order to characterize potential effects of these cumulative water demands, an estimated cumulative budget for the CVGB is presented in Table 4.20-5 (Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin).

The estimated cumulative groundwater budget presented in Table 4.20-4 indicates that the CVGB could be affected by overdraft conditions during implementation of the DHSP. These deficit years are likely due to the elevated construction water requirements associated with coinciding construction periods for projects such as the Eagle Crest Pumped Storage Project, the Palen Solar Power Project, and the Desert Sunlight Solar Farm project, noted in Table 4.20-3.

Following completion of the construction periods for these projects, their water requirements would decrease and overdraft conditions in the CVGB would recover. As portrayed in Table 4.20-4, projected overdraft conditions are projected to recover substantially over the life of the DHSP.

Construction and operation of the DHSP would include implementation of BMPs and mitigation measures identified in Section 4.20.6. Mitigation Measure WAT-2 (Alternative Water Source and Groundwater Offsets) and Mitigation Measure WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) require actions to ensure that construction of the proposed project or an alternative would not contribute to or result in long-term overdraft conditions. Potential overdraft effects would be temporary and would cease in response to the implementation of requirements specified in Mitigation Measures WAT-2 and WAT-3. As determined in the effects analyses presented in Sections 4.20.3 through 4.20.14, the proposed project or an alternative would not result in long-term overdraft or drawdown conditions. In

**Table 4.20-4. Estimated Water Requirements of Cumulative Projects (afy)**

| Cumulative Projects[1] | Const. | O&M | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019–2043 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Western Chuckwalla Valley Groundwater Basin** | | | | | | | | | | | | |
| Chuckwalla Solar I | 20 | 40 | 0 | 20 | 20 | 20 | 40 | 40 | 40 | 40 | 40 | 40 |
| Palen Solar Power Project | 436 | 300 | 0 | 426 | 426 | 436 | 300 | 300 | 300 | 300 | 300 | 300 |
| First Solar Desert Sunlight | 600–650 | 0.3 | 0 | 0 | 650 | 650 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Red Bluff Substation | 300 | 0 | 0 | 0 | 150 | 150 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gen-Tie Line | 6.25 | 0 | 0 | 0 | 0 | 6.25 | 0 | 0 | 0 | 0 | 0 | 0 |
| Devers-Palo Verde No. 2 Transmission | 2 | | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colorado River Substation Expansion[3] | 215 | 0 | 0 | 0 | 215 | 66 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blythe Energy Transmission Line | 2 | | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Desert Southwest Transmission Line | 0.3 | | 0 | 0 | 0 | 0.3 | 0.3 | 0 | 0 | 0 | 0 | 0 |
| Eagle Crest Pumped Storage Startup | 2,380–8,066 | 1,628 | 0 | 0 | 0 | 0 | 8,066 | 8,066 | 8,066 | 8,066 | 2,380 | 1,628 |
| *WESTERN SUB-BASIN DEMAND* | | | *2* | *450* | *1,463* | *1,330.5* | *8,406.6* | *8,406.3* | *8,406.3* | *8,406.3* | *2,720.3* | *1,968.3* |
| **Eastern Chuckwalla Valley Groundwater Basin** | | | | | | | | | | | | |
| Genesis Solar Energy Project | 616–1,368 | 1,644 | 616 | 1,368 | 616 | 616 | 1,644 | 1,644 | 1,644 | 1,644 | 1,644 | 1,644 |
| Devers-Palo Verde No. 2 Transmission | 2 | | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blythe Energy Transmission Line | 2 | | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Desert SW Transmission | 0.3 | | 0 | 0 | 0 | 0.3 | 0.3 | 0 | 0 | 0 | 0 | 0 |
| *EASTERN SUB-BASIN DEMAND* | | | *618* | *1,372* | *618* | *618.3* | *1,644.3* | *1,644* | *1,644* | *1,644* | *1,644* | *1,644* |
| **Combined Western and Eastern Chuckwalla Valley Groundwater Basin** | | | | | | | | | | | | |
| | | | **620** | **1,822** | **2,081** | **2,948.85** | **10,050.9** | **10,050.3** | **10,050.3** | **10,050.3** | **4,364.3** | **3,612.3** |

Notes: See next page

## Notes for Table 4.20-4

1 - Status of cumulative projects listed in this table:

- Gen-Tie Line construction would being in the 3rd or 4th quarter of 2012 and would last for an estimated 12 months; due to the late-2012 construction start, it is anticipated that most water use associated with the gen-tie line would occur in 2013.
- Chuckwalla Solar I has submitted a Plan of Development to BLM
- Palen Solar Energy Project was approved by the CEC in December of 2010, Final EIS published in May of 2011, proposed to be online in 2012
- First Solar Desert Sunlight was approved in August of 2011 and was under construction at the time of publication of the Notice of Intent for DHSP (September 15, 2011).
- Devers-Palo Verde No. 2 Transmission Line Project: BLM issued Record of Decision in July of 2011
- Colorado River Substation Expansion: Construction anticipated to initiate in December of 2011.
- Blythe Energy Transmission Line: Existing.
- Desert Southwest Transmission Line: Approved by BLM in 2006.
- Eagle Crest Pumped Storage: FERC Draft EIS published in December of 2010.
- Genesis Solar Energy Project: Currently under construction.

2 - The Genesis analysis noted that the Desert Sunlight Solar Farm project would pump 27 afy of groundwater during the construction period and 3.8 afy during the operational period; however, the FEIS for Desert Sunlight indicates that this project would pump an average of 1,556 afy during construction and less than 0.3 afy during operation. For the purposes of this analysis, the quantities indicated in the Desert Sunlight FEIS are used.

3 - The Colorado River Substation Expansion project would pump 300,000 gallons per day (gpd) over the first four to six months, or a total of 110.5 to 165.7 acre-feet, and 120,000 gpd over the following 18 months, or 198.9; in total, this project is anticipated to pump 309.3 to 364.6 acre-feet over 22 to 24 months, or an average annual rate of 215 afy during the first full year (2012) and 66 afy during the second year. No operational water use has been identified.

Source: CEC 2010; CEC 2010; CPUC 2011; WorleyParsons 2009

### Table 4.20-5. Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)[1]

| | Inflow (afy) | | | | | Outflow (afy) | | | | | Balance (afy) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Precip. | Subsurface Inflow | Irrigation Return | Wastewater Return | *Total Inflow* | Current Pumping | Flow to PVMGB | Palen Lake Evap | Future Pumping | *Total Outflow* | Balance | DHSP Demand | *With-Project* |
| 2012 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 360 | 350 | 2,081 | *13,152* | 1,232 | 0 | *1,232* |
| 2013 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 347 | 350 | 2,948.85 | *14,007* | 377 | 500.51 | *–123* |
| 2014 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 334.5 | 350 | 10,050.9 | *21,096* | –6,712 | 500.51 | *–7,213* |
| 2015 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 322 | 350 | 10,050.3 | *21,083* | –6,699 | 39.02 | *–6,738* |
| 2016 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 308 | 350 | 10,050.3 | *21,069* | –6,685 | 39.02 | *–6,724* |
| 2017 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 295 | 350 | 10,050.3 | *21,056* | –6,672 | 39.02 | *–6,711* |
| 2018 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 281.5 | 350 | 4,364.3 | *15,357* | –973 | 39.02 | *–1,012* |
| 2019 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 269 | 350 | 3,612.3 | *14,592* | –208 | 39.02 | *–247* |
| 2020 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 256.5 | 350 | 3,612.3 | *14,580* | –196 | 39.02 | *–235* |
| 2021 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 245 | 350 | 3,612.3 | *14,568* | –184 | 39.02 | *–223* |
| 2022 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 233 | 350 | 3,612.3 | *14,556* | –172 | 39.02 | *–211* |
| 2023 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 221 | 350 | 3,612.3 | *14,544* | –160 | 39.02 | *–199* |
| 2024 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 210 | 350 | 3,612.3 | *14,533* | –149 | 39.02 | *–188* |
| 2025 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 199.5 | 350 | 3,612.3 | *14,523* | –139 | 39.02 | *–178* |
| 2026 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 190 | 350 | 3,612.3 | *14,513* | –129 | 39.02 | *–168* |
| 2027 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 180 | 350 | 3,612.3 | *14,503* | –119 | 39.02 | *–158* |
| 2028 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 170 | 350 | 3,612.3 | *14,493* | –109 | 39.02 | *–148* |
| 2029 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 160 | 350 | 3,612.3 | *14,483* | –99 | 39.02 | *–138* |
| 2030 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 150 | 350 | 3,612.3 | *14,473* | –89 | 39.02 | *–128* |
| 2031 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 140 | 350 | 3,612.3 | *14,463* | –79 | 39.02 | *–118* |
| 2032 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 131 | 350 | 3,612.3 | *14,454* | –70 | 39.02 | *–109* |
| 2033 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 122 | 350 | 3,612.3 | *14,445* | –61 | 39.02 | *–100* |
| 2034 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 113 | 350 | 3,612.3 | *14,436* | –52 | 39.02 | *–91* |
| 2035 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 106 | 350 | 3,612.3 | *14,429* | –45 | 39.02 | *–84* |
| 2036 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 98 | 350 | 3,612.3 | *14,421* | –37 | 39.02 | *–76* |
| 2037 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 90 | 350 | 3,612.3 | *14,413* | –29 | 39.02 | *–68* |
| 2038 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 83 | 350 | 3,612.3 | *14,406* | –22 | 39.02 | *–61* |
| 2039 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 77 | 350 | 3,612.3 | *14,400* | –16 | 39.02 | *–55* |
| 2040 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 71 | 350 | 3,612.3 | *14,394* | –10 | 39.02 | *–49* |
| 2041 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 83 | 350 | 3,612.3 | *14,406* | –22 | 39.02 | *–61* |
| 2042 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 77 | 350 | 3,612.3 | *14,400* | –16 | 39.02 | *–55* |
| 2043 | 9,448 | 3,500 | 800 | 636 | *14,384* | 10,361 | 71 | 350 | 3,612.3 | *14,394* | –10 | 39.02 | *–49* |

Source: CEC 2010; CEC 2009; BLM 2011a

1 - Inflow and outflow factors are discussed in detail in Section 3.20.2 (see "Groundwater Resources")

addition, if other project(s) within the geographic and temporal scope of analysis pump CVGB groundwater at the same time as the proposed project or an alternative, and such pumping results in overdraft conditions (temporary or long-term) as noted in Table 4.20-4, such effects would be detected by the groundwater monitoring and reporting activities required per Mitigation Measure WAT-3 and groundwater pumping associated with the proposed project or an alternative would be subsequently ceased until the groundwater resource recovers, which is anticipated to occur in response to precipitation events, per the nature of fractured rock storage and overdraft/drawdown conditions. Therefore, the DHSP would not contribute to cumulative effects associated with groundwater supply and recharge.

Water supply reliability is further addressed in the WSA prepared for the DHSP, included as Appendix E to this EIS. The WSA includes consideration of the cumulative groundwater budget discussed above, under varying climatic conditions in order to project how the availability of water supply could be affected by drought years. Conclusions presented in Section 5 of the WSA also describe that although overdraft conditions could develop in the CVGB during implementation of the DHSP and other reasonably foreseeable projects in the area, such conditions would be temporary, and the contribution of the proposed project or an alternative to such conditions would be minimized through implementation of mitigation measures. The incremental effect of the proposed project or an alternative on overall cumulative groundwater supply reductions would be minimal.

#### *Surface Water and Drainage Patterns*

Implementation of the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would include both temporary and permanent areas of disturbance that would result in site-specific alterations to surface waters and drainage patterns. With implementation of the BMPs and mitigation measures presented in Section 4.20.6, construction, operation, and maintenance would not result in substantial effects to surface water and drainage patterns such that erosion, siltation, or flooding would occur on or off site. Other projects that are also identified in the cumulative scenario (see Table 4.1-1) would result in alterations to surface water and drainage patterns in similar ways as the proposed project or an alternative; however, such effects are anticipated to be site-specific and would not occur on the same site as the proposed project or an alternative.

#### *Stormwater Drainage Systems*

The proposed project and alternatives (Alternatives 5 through 7 and C, D, and E) would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, and would therefore not have the potential to result in cumulative effects associated with existing or planned stormwater drainage systems. Due to the use and storage of harmful or potentially hazardous materials during the project, there is potential for contributions of sources of polluted runoff to occur, such as if an accidental leak or release of harmful materials were to occur during a storm event; however, such effects would be site-specific and mitigated by actions listed in Section 4.20.6, and would therefore not have the potential to combine with effects of other projects in the cumulative scenario, as related to the contribution of polluted runoff.

*Flood Hazard Areas*

Infrastructure constructed under the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would be designed and engineered to withstand potential flooding and erosion hazards and, with implementation of BMPs and mitigation measures identified in Section 4.20.6, effects associated with impeding or redirecting flood flows would be minimized and/or avoided. It is anticipated that other projects in the cumulative scenario would also place infrastructure within and/or adjacent to areas subject to flooding hazards; however, due to the site-specific nature of potential effects associated with Flood Hazard Areas and the minimization and/or avoidance of potential Flood Hazard Area effects that would occur through implementation of the BMPs and mitigation measures identified in Section 4.20.6, this potential effect of the proposed project or an alternative is not anticipated to combine with similar effects of other projects in the cumulative scenario.

*Water Quality*

Degradation of surface water quality and/or groundwater quality could occur through the effects of erosion and sedimentation, and/or through the accidental release of hazardous materials, particularly if a storm event occurs during construction activities. Other projects in the cumulative scenario would also have the potential to result in water quality effects associated with erosion and sedimentation and/or the release of hazardous materials. This effect of the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would be site-specific in nature and would be minimized and/or avoided through implementation of the BMPs and mitigation measures identified in Section 4.20.6. This potential effect of the proposed project or an alternative would not have potential to combine with similar effects of other projects in the cumulative scenario.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative effects to water resources, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.20.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

***CEQA Significance Criteria***

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to water resources under CEQA. The project and alternatives would result in a significant impact to water resources if one of the following criteria is met.

WAT-1 Violate any water quality standards or waste discharge requirements.

WAT-2 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

WAT-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

WAT-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

WAT-5 Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

WAT-6 Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Additional significance criteria identified in Appendix G of the CEQA Guidelines have been determined either to be inapplicable or to result in no impact associated with the proposed project or an alternative. These criteria, listed below, are not discussed in the following "CEQA Significance Determination" section.

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- Inundation by seiche, tsunami, or mudflow.
- Otherwise substantially degrade water quality.

The proposed project and alternatives are located within an area that has been designated by FEMA as Flood Zone D, or areas which have not been mapped for Flood Hazard Areas or 100-year flood hazard areas. This does not mean that such flooding potential does not exist, but rather that it has not be quantified or mapped. Flooding risks and potential impacts associated with flooding are addressed under Significance Criterion WAT-6.

The project site is not located near a body of water that would have the potential to be affected by a seiche or tsunami that could result in inundation of the site or surrounding area. With regards to mudflow, mudflow tends to occur on steep slopes where vegetation is not sufficient to prevent rapid erosion, and where specific soil characteristics exist. The project area is generally surrounded by mountainous areas; as described in Section 3.20, the Chuckwalla Mountains are to the south of the valley, Eagle Mountains are to the west and north of the valley, Coxcomb Mountains are to the north of the valley, and Palen Mountains are to the east. However, none of these mountainous areas are in close enough proximity to the proposed project site that the site would be inundated should a mudflow event occur.

Potential impacts associated with water quality are sufficiently addressed under CEQA Significance Criteria WAT-1 through WAT-5. An additional criterion specific to water quality effects is therefore not necessary. CEQA Significance Criteria WAT-1 through WAT-6 are discussed below.

***CEQA Significance Determination***

**Alternative 1.** Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. Impacts to water resources would not occur.

**Alternative 2.** Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Impacts to water resources would not occur.

**Alternative 3.** Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Impacts to water resources would not occur.

**Alternative 4.** Alternative 4 is expected to occur in compliance with all applicable water quality standards and waste discharge requirements. Mitigation Measure WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project would occur in compliance with all applicable water quality permits and waste discharge requirements associated with construction, operation, and decommissioning activities; potential impacts would be less than significant with mitigation (CEQA Significance Criterion WAT-1).

Construction, operation and maintenance, and decommissioning of Alternative 4 would require a water source, and would meet project water requirements by pumping groundwater from the CVGB. Table 3.20-2 indicates that estimated safe yield of the CVGB, including consideration to the Desert Sunlight project, is approximately 2,623 afy, which is sufficient to meet all water requirements under Alternative 4. Mitigation measures listed in Section 4.20.6 would include the implementation of an Alternative Water Source and Groundwater Offsets (MM WAT-2), and a Groundwater Drawdown Monitoring and Reporting Plan (MM WAT-3). In addition, although Alternative 4 would introduce new impervious features across the site, including areas of soil compaction such as along access roads, these effects would not reduce infiltration rates or patterns such that groundwater supply and recharge to the CVGB would be adversely affected. Implementation of the Drought Water Management and Water Conservation Education Programs required per MM WAT-6 and the Colorado River Water Supply Plan required per MM WAT-7 would also minimize potential impacts to groundwater supply and recharge. Potential impacts would be less than significant with mitigation (CEQA Significance Criterion WAT-2).

Alternative 4 would alter existing drainage patterns on the site, but would not alter the course of any stream or river. A project-specific SWPP would be developed and implemented, and would include BMPs specified in MM WAT-4 to minimize or avoid potential impacts associated with erosion, siltation, and flooding. Alternative 4 would not alter surface runoff such that substantial erosion, siltation, or flooding would occur on or off site; impacts would be less than significant with mitigation (CEQA Significance Criteria WAT-3 and WAT-4).

There is no existing stormwater drainage system(s) in the project area. However, construction of Alternative 4 would result in ground-disturbing activities and the handling and storage of potentially hazardous materials that would have the potential to leak or be accidentally released, resulting in polluted stormwater runoff. With implementation of the BMPs specified in MM WAT-4 and the accidental spill control and environmental training measures required per MM WAT-9, potential impacts associated with the contribution of polluted runoff would be less than significant (CEQA Significance Criterion WAT-5).

The project area is not located in proximity to a levee or dam, such that the failure of this infrastructure would result in flooding at the DHSP site. The project area is also not located within a FEMA-designated Flood Hazard Area or 100-year Flood Zone; however, the site and surrounding parcels are designated as Flood Zone D, indicating that 100-year floods have not been assessed for this area. As described in Section 3.20, hydrologic analysis conducted in support of the DHSP indicates that 100-year flood depth on the site is anticipated to be three to five feet in depth. In accordance with MM WAT-8, all features constructed under Alternative 4 would be designed and maintained to withstand flood flows on the site, and potential impacts associated with risks associated with flooding would be less than significant (CEQA Significance Criterion WAT-6).

Alternative 4 would contribute to cumulative water supply impacts associated with the use of the CVGB to meet the project's water requirements; however, implementation of Mitigation Measures WAT-2 (Alternative Water Source and Groundwater Offsets) and WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would minimize or avoid the project's potential to affect water supply. With implementation of these mitigation measures, the project's contribution to cumulative water supply impacts would be less than significant. Similarly, as described above, Alternative 4 would not result in significant impacts to surface water and drainage patterns stormwater drainage systems, flood hazard areas, or water quality; the project's contribution to cumulative water resources impacts would be less than significant.

**Alternative 5.** Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site, in an area located away from any identified residences. Therefore, water resources impacts and CEQA significance conclusions for Criteria WAT-1 through WAT-7 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

**Alternative 6.** Similar to Alternative 5, Alternative 6 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would include the same water requirements. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5, and the potential for associated soil erosion and sedimentation would be marginally less, but for practical purposes and with consideration to the overall project, water quality impacts would be the same as described for Alternative 4. Potential impacts to water resources and the associated CEQA significance conclusions for Criteria WAT-1 through

WAT-6 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above.

**Alternative 7.** Similar to Alternative 6, Alternative 7 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would include the same water requirements. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5, and the potential for associated soil erosion and sedimentation would be marginally less, but for practical purposes and with consideration to the overall project, water quality impacts would be the same as described for Alternative 4. Potential impacts to water resources and the associated CEQA significance conclusions for Criteria WAT-1 through WAT-6 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above.

**Alternative A.** Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no water resources impacts under CEQA Significance Criteria WAT-1 through WAT-7 related to construction, operations and maintenance, or decommissioning would occur.

**Alternative B.** Alternative B would share gen-tie infrastructure with the Desert Sunlight project; however, because the Desert Sunlight gen-tie is not included in baseline conditions, Alternative B would involve the construction of gen-tie infrastructure. Alternative B would require a water supply of 6.25 afy, is accounted for in the water availability projections included in the WSA provided as Appendix E. The use of equipment and machinery required to construct, maintain, and decommission gen-tie infrastructure would introduce the potential for localized drainage pattern alternations to occur, as well as introduce the potential for a spill or leak of hazardous materials to occur. Potential impacts would be less than significant with mitigation.

The cumulative scenario for Alternative B includes the Desert Sunlight project; therefore, potential cumulative effects to water resources associated with construction of the proposed gen-tie under Alternative B would be negligible because the same gen-tie would be constructed by Desert Sunlight.

**Alternative C.** The potential for water resources impacts to occur under Alternative C would be greater than under Alternative B due to the construction of new towers. The use of equipment and machinery required to construct, maintain, and decommission additional infrastructure would increase the potential for a spill or leak of hazardous materials to occur. Potential impacts to water quality could occur from a leak or release of hazardous materials used in construction vehicles and equipment. Potential impacts would be less than significant with mitigation.

Potential impacts of Alternative C would be reduced to a less-than-significant level with the implementation of mitigation measures, and the contributions of Alternative C to cumulative water resources impacts would also be less than significant.

**Alternative D.** Alternative D would require slightly less temporary and permanent ground disturbance, and potential water quality impacts associated with erosion and sedimentation would also be less. Potential impacts would be less than significant with mitigation.

**Alternative E.** Alternative E would result in the same potential for impacts to water resources as Alternative D. Potential impacts would be less than significant with mitigation.

# Section 4.21

## Solid and Hazardous Wastes

## 4.21 SOLID AND HAZARDOUS WASTES

### 4.21.1 Methodology for Analysis

Environmental baseline conditions for the impact analysis presented in this section are described in Section 3.21 of this EIS. Solid and hazardous waste effects are assessed here with respect to the following: wastes generated on-site, disposal of wastes generated on-site, septic system, landfill use and capacity, and emergency response and evacuation relevant to hazardous wastes. Hazardous materials and public safety are addressed in Sections 3.13 and 4.13, Public Health and Safety.

### 4.21.2 Applicant Measures

Applicant measures (AM) relevant to solid and hazardous wastes that would be implemented during project construction, operation and maintenance, and/or decommissioning, as appropriate, are listed in Section 4.13.2 (Applicant Measures, Public Health and Safety): AM HAZ-1 through AM HAZ-9.

The Bureau of Land Management (BLM), as the National Environmental Policy Act (NEPA) Lead Agency, adopts the applicant measures by incorporating them into project-specific mitigation measures, as appropriate, to minimize solid and hazardous wastes impacts to the extent feasible. Proposed mitigation measures encompass the substance and intent of the applicant measures, but clarify or expand on reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures and applicant measures for solid and hazardous wastes impacts, the mitigation measures take precedence.

### 4.21.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

### 4.21.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

### 4.21.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

### 4.21.6 Alternative 4 – Proposed Solar Project

#### *Construction*

#### *Direct Effects*

Construction of Alternative 4 would generate wastes on-site such as oily rags, broken and rusted metal and machine parts, defective or broken panels and electrical materials, empty containers, and miscellaneous solid wastes including the refuse generated by workers. These materials would be collected on-site and disposed of in an off-site facility or facilities with sufficient capacity to accept project waste. As discussed in Section 3.21.2, the Riverside County Waste Management Department (RCWMD) operates six landfills (Badlands, Blythe, Desert Center, Lamb Canyon, Mecca II, and Oasis) and has a contract agreement for waste disposal with an additional private landfill (El Sobrante); RCWMD ensures that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011).

Portable bathrooms would be provided on-site during construction of Alternative 4 and would be emptied in an approved off-site facility; domestic wastewater generated during construction of the project would not be disposed of on-site.

Broken cadmium-containing panels are not classified as hazardous wastes because the chemical within PV modules including cadmium are highly stable and would not be available for release to and interaction with the environment. Potential public health and safety effects of broken cadmium-containing PV panels are addressed in Section 4.13, Public Health and Safety.

All construction-related hazardous wastes would be transported and disposed of in compliance with all federal and State laws and regulations governing hazardous wastes, as described in Section 3.21. Through compliance with existing laws and regulations, adverse effects related to the transport and disposal of solid and hazardous wastes would be unlikely to occur. Furthermore, implementation of Mitigation Measure (MM) PHS-1 through MM-PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) as required for potential public health and safety effects would minimize any potential risk to public health or the environment related to transportation and disposal of hazardous wastes from project construction.

#### *Indirect Effects*

Construction of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

### Operation and Maintenance

#### *Direct Effects*

Operation and maintenance of Alternative 4 would generate minimal waste requiring off-site disposal; such waste is anticipated to include office waste, food scraps from operational workers, and occasional broken components. As with construction waste, operational waste would be collected on-site and transported to an off-site disposal facility or facilities with sufficient capacity to accept project waste. As described above and discussed in Section 3.21.2, the RCWMD ensures that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011).

Operation and maintenance of Alternative 4 would also include the use, storage, and disposal of the same hazardous and potentially hazardous materials as for the construction phase.

All operational hazardous wastes would be required to be transported and disposed of in compliance with all federal and State laws and regulations governing hazardous wastes, as described in Section 3.21. Mitigation Measures PHS-1 through PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) would reduce effects related to hazardous wastes. The text of these measures is included in Section 4.13 (Public Health and Safety).

Sanitary wastewater would be discharged into an appropriate septic system and leach field that will be permitted by the Riverside County Health District and permitted under a Waste Discharge Requirement (WDR) permit from the Colorado River Basin Regional Water Quality Control Board (RWQCB). Compliance with existing laws and regulations, in combination with implementation of AMs and MMs listed above would minimize potential operational adverse effects related to solid and hazardous wastes.

#### *Indirect Effects*

Operation and maintenance of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

### Decommissioning

#### *Direct Effects*

As with construction and operation of the project, waste materials generated during decommissioning of the project would be collected on-site and disposed of in an off-site facility or facilities with sufficient capacity to accept project waste. Any potential effects related to these materials would be reduced by Applicant Measure HAZ-10 and Mitigation Measures PHS-1 through PHS-6 (text in Section 4.13, Public Health and Safety; Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels). MM-PHS-6 specifically addresses proper recycling or disposal of project infrastructure.

AM-HAZ-10 (Decommissioning Plan) includes the Applicant's decommissioning plan. A decommissioning plan will be developed for the project and submitted to the BLM for review and approval; this plan would include procedures designed to ensure public health and safety, including as related to solid and hazardous wastes.

Also as described in the Applicant's POD, the decommissioning strategy for the project may include the following, as relevant to solid and hazardous wastes:

- Provide for recycling the components of the plant: metal, panels, concrete, etc., and proper disposal of all other materials;
- Remove all residual materials and chemicals from the site prior to demolition for reuse at other facilities or disposal at licensed facilities;
- Soils clean-up, if needed, particularly at locations where hazardous materials were used or stored to ensure that clean closure is achieved.

As described in the Applicant's POD, if closure of the project involves the threat or actual release of hazardous substances, procedures will be implemented from the Hazardous Materials Business Plan to be developed specifically for the project. Such procedures will include but not be limited to the following:

- Practices to control any release of hazardous materials;
- Applicable notifications of responsible agencies and the public; and
- Emergency response procedures.

***Indirect Effects***

Decommissioning of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

#### *Mitigation Measures*

Applicant Measures noted above from Public Health and Safety (Section 4.13) and MM-PHS-1 through MM-PHS-6 would minimize effects related to hazardous wastes.

#### *Residual Impacts and Unavoidable Adverse Effects*

No unavoidable adverse effects to solid and hazardous wastes would result from implementation of Alternative 4.

### 4.21.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA).

#### *Construction*

Excluding the WHMA from development under Alternative 5 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regard to the potential of Alternative 5 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

***Operation and Maintenance***

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

***Decommissioning***

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

***Mitigation Measures***

Mitigation Measures for Alternative 4 would also apply to Alternative 5.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects on solid and hazardous wastes.

### 4.21.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same site boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

***Construction***

Alternative 6 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regards to the potential of Alternative 6 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

***Operation and Maintenance***

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

***Decommissioning***

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

***Mitigation Measures***

Mitigation Measures for Alternative 4 would also apply to Alternative 6.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects on solid and hazardous wastes.

### 4.21.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

#### *Construction*

Alternative 7 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regards to the potential of Alternative 7 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

#### *Operation and Maintenance*

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

#### *Decommissioning*

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

#### *Mitigation Measures*

Mitigation Measures for Alternative 4 would also apply to Alternative 7.

#### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects on solid and hazardous wastes.

### 4.21.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated. Therefore, no solid and hazardous wastes effects related to construction, operations and maintenance, or decommissioning would occur.

#### *Mitigation Measures*

No mitigation measures for solid and hazardous wastes are required for Alternative A.

#### *Residual Impacts and Unavoidable Adverse Effects*

No solid and hazardous wastes effects would result from the implementation of Alternative A.

### 4.21.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm (DSSF) project by sharing the approved transmission towers. However, since construction of the DSSF gen-tie line had not yet begun in September 2011, this analysis assumes that the proposed project would include all construction, operations, and decommissioning activities for Alternative B.

***Construction***

Stringing of enXco's gen-tie line would occur concurrently with construction of First Solar's gen-tie line. However, since this construction had not yet begun in September 2011, this analysis assumes that the proposed project would require all related construction activities.

***Direct Effects***

The types of construction activities under Alternative B would be similar to those for Alternative 4; however, less construction would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

***Indirect Effects***

No indirect effects related to solid and hazardous wastes would occur as a result of construction of Alternative B.

***Operation and Maintenance***

Operation and maintenance of activities under Alternative B would be essentially the same as those for Alternative 4.

***Direct Effects***

Direct effects of operation and maintenance under Alternative B would be similar to those of Alternative 4; however, less maintenance activity would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

***Indirect Effects***

No indirect effects related to solid and hazardous wastes would occur as a result of operation and maintenance of Alternative B.

***Decommissioning***

***Direct Effects***

Decommissioning activities under Alternative B would be similar to those for Alternative 4; however, less decommissioning would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

***Indirect Effects***

No indirect effects related to solid and hazardous wastes would occur as a result of decommissioning of Alternative B.

***Mitigation Measures***

Mitigation identified for Alternative 4 would also be implemented for Alternative B.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

### 4.21.12 Alternative C –Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of the Desert Sunlight towers would be constructed.

***Construction***

Construction effects would be the same as those of Alternative B.

***Operation and Maintenance***

Operations and maintenance effects would be the same as those of Alternative B.

***Decommissioning***

Decommissioning effects would be the same as those of Alternative B.

***Mitigation Measures***

Measures identified for Alternative 4 would also be implemented for Alternative C.

***Residual Impacts and Unavoidable Adverse Effects***

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

### 4.21.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

***Construction***

*Direct Effects*

Direct effects related to solid and hazardous wastes would be slightly less under Alternative D due to the need for slightly less ground disturbance, noted above. However, with consideration to the overall project, this difference in potential effects on solid and hazardous wastes would be negligible. Construction effects on solid and hazardous wastes would be the same as described for Alterative B.

*Indirect Effects*

No indirect effects related to solid and hazardous wastes would occur as a result of construction of Alternative D.

### *Operation and Maintenance*

Operation and maintenance of Alternative D may include repair or replacement of facilities, as necessary. Potential effects related to solid and hazardous wastes would be the same as those of Alternative B.

### *Decommissioning*

#### *Direct Effects*

Decommissioning of Alternative D may result in slightly decreased effects related to solid and hazardous wastes associated with slightly decreased land disturbance. However, as with construction, this difference in potential effects on solid and hazardous wastes would be negligible. Decommissioning effects on solid and hazardous wastes would be the same as described for Alternative B.

#### *Indirect Effects*

No indirect effects related to solid and hazardous wastes would occur as a result of decommissioning of Alternative D.

### *Mitigation Measures*

Measures identified for Alternative 4 would also apply to Alternative D.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

## 4.21.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be the same as described for Alternative C.

### *Construction*

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

### *Operation and Maintenance*

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

### *Decommissioning*

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

### *Mitigation Measures*

Measures identified for Alternative 4 would also apply to Alternative E.

### *Residual Impacts and Unavoidable Adverse Effects*

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

## 4.21.15 Cumulative Effects

Cumulative effects related to solid and hazardous wastes can result from individually minor but collectively significant actions taken over time. Major past, present, and reasonably anticipated future land uses and disturbances in the area have been identified in Section 4.1.4 (Cumulative Scenario) in this EIS, and include energy generation, military uses, commercial and residential developments, and roadway improvements. These projects are discussed below as relevant to the project's potential cumulative effects related to solid and hazardous wastes.

### *Geographic Scope*

The geographic extent of the cumulative analysis of solid and hazardous wastes is within the I-10 corridor in Riverside County, as described in Section 4.1.4 (Cumulative Scenario). Past and ongoing development throughout the project area has introduced sources of solid and hazardous wastes which contribute to landfill use and capacity. Tables 4.1-1 and 4.1-2 identify all the existing and foreseeable projects within the cumulative scenario.

**Table 4.21-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis**

| Resource Area / BLM Program Area | Geographic Area of Consideration | Elements to Consider | BLM Authorized and Other Known County Projects/Actions/Activities |
|---|---|---|---|
| Wastes, Solid and Hazardous | Eastern Riverside County | Contribution to landfill use and capacity | All projects listed in Table 4.1-1 and 4.1-2 that would undergo construction for contribution to landfill.<br>Projects with the most similar types of wastes include:<br>• Desert Sunlight Solar Farm<br>• Silverado Power Solar Project<br>• Palen Solar Power Project<br>• Blythe Solar Power Project<br>• NextEra McCoy<br>• McCoy Soleil<br>• Genesis Solar Energy Project<br>• Rice Solar Energy Project<br>• Blythe Airport Solar I Project<br>• Desert Quartzite<br>• Blythe Mesa Solar I<br>• Rio Mesa Solar Electric |

### *Cumulative Effects Analysis*

Most of the Riverside County projects listed in Tables 4.1-1 and 4.1-2 and identified on Figure 4.1-1 in Appendix A have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

A cumulative effect related to solid and hazardous wastes would only occur where the project and other projects would result in the same type of solid and hazardous wastes effect within the same timeframe and at the same location. As discussed in this section, there is sufficient disposal capacity through the RCWMD facilities to accommodate the project and other projects within the RCWMD for a minimum of 15 years. Therefore, the project would not result in adverse cumulative effects associated with landfill use and capacity. In addition, wastes generated on-site would be handled and disposed of appropriately, and in accordance with laws and regulations and BMPs and mitigation measures identified in this analysis.

Potential effects associated with wastes generated on-site and the disposal of wastes generated on-site would be site-specific and would not have potential to combine with similar effects of other projects. The septic system and leach field used for wastewater disposal would be permitted and operated in compliance with existing laws and regulations; the project would not have the potential to result in cumulative effects associated with the septic system and leach field. Finally, with regards to hazardous wastes, implementation of required mitigation measures would ensure that there would be no unavoidable adverse effects from the project or any incremental contribution to adverse cumulative effects. With the implementation of required measures and adherence to all regulatory requirements, the incremental effect of the proposed project and Alternatives 5 through 7, and C through E related to solid and hazardous wastes would be minimal.

Because construction and project development would not occur, the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative solid or hazardous waste effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

### 4.21.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

#### ***CEQA Significance Criteria***

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant effects to solid wastes under CEQA. CEQA significance criteria for hazardous materials and hazardous wastes are addressed in Section 4.13.16 (CEQA Considerations, Public Health and Safety). The proposed project and alternatives would result in a significant effect related to solid wastes if they would *not*:

WAST-1 Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs

WAST-2 Comply with federal, state, and local statutes and regulations related to solid waste.

### *CEQA Significance Determination*

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A), these alternatives would not contribute to solid and hazardous waste impacts.

As described above, wastes generated by Alternatives 4 through 7 and B through E would be disposed of through RCWMD facilities. These facilities ensure that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011). Construction, operation and maintenance, and decommissioning of the proposed project or relevant alternatives would occur in compliance with laws and regulations, and BMPs relevant to the handling of solid wastes. The septic system and leach field used for wastewater disposal would be in compliance with County and RWQCB permitting requirements. Impacts related to hazardous wastes would be minimized by MM-PHS-1 through MM-PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels). Therefore, impacts related to Criterion WAST-1 and WAST-2 would be less than significant.

**Cumulative Impacts**. As described in Section 4.21.16, because of adequate available disposal capacity, compliance with applicable regulations, and the implementation of mitigation measures addressing hazardous wastes, the proposed project and alternatives would not represent a considerable contribution to any cumulative impacts related to solid and hazardous wastes.

# Section 4.22

## Irreversible and Irretrievable Commitment of Resources

## 4.22 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The BLM NEPA Handbook (H-1790-1 Sec. 9.2.9), the CEQ guidelines for implementing NEPA (40 CFR 1502.16), and CEQA Guidelines Section 15126.2 require a discussion of any irreversible or irretrievable commitments of resources which would be caused by implementation of the Proposed Action or one of the action alternatives; the relationship between short-term uses and long-term productivity of the environment (see Section 4.23); and any growth-inducing impacts (see Section 4.15).

Resources irreversibly or irretrievably committed to a proposed action are those used on a long-term or permanent basis. This includes the use of nonrenewable resources such as metal, wood, fuel, paper, aggregate and other natural resources. These resources are considered irretrievable in that they would be used for a proposed action when they could have been conserved or used for other purposes. Another irreversible or irretrievable commitment of resources could be the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

The Proposed Action or any action alternatives would irretrievably commit resources over the 30-year life of the project. Construction of the DHSP would require use of nonrenewable resources. During project operations, oil, gas, and other nonrenewable resources would be consumed for maintenance purposes, although on a limited basis. After 30 years, the DHSP could be decommissioned and the land returned to its pre-project state, or the facility owners may wish to work with the BLM to replace the old facilities with a new re-powering project on the same site. In the event that the project is decommissioned, some of the resources on site could be potentially retrieved for re-use or recycling. However, full site recovery to its pre-project state may not be possible given the 30-year life-span of the DHSP and the many unknown variables that could affect the site. Sensitive desert habitats have potentially lengthy recovery time from disturbances such as grading and site development.

The DHSP is a renewable energy project intended to generate solar energy to reduce reliance on fossil fuels. Over the 30-year life of the DHSP, this renewable energy project would contribute incrementally to the reduction in demand for fossil fuel used to generate electricity, thereby resulting in a positive effect of the commitment of nonrenewable resources to the DHSP.

# Section 4.23

## Short-Term vs. Long-Term Productivity of the Environment

## 4.23 SHORT-TERM VS. LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

The BLM NEPA Handbook (H-1790-1 Sec. 9.2.9) and the CEQ guidelines for implementing NEPA (40 CFR 1502.16) require a discussion of the relationship between short-term uses and long-term productivity of the environment from implementation of the proposed project or one of the action alternatives. "Short term" refers to the total duration of project, and "long term" refers to an indefinite period beyond the project for uses such as natural habitat. The specific impacts of the proposed project and any of the action alternatives vary in kind, intensity, and duration. The project involves tradeoffs between long-term productivity and short-term uses of the environment.

The development of the proposed project or any of the action alternatives would result in short-term uses of the environment typically found with solar energy development. Short-term impacts associated with construction, operation, and decommissioning activities are described in Chapter 4, Environmental Consequences, and include effects to the natural environment, cultural resources, recreation resources, and transportation. One long-term adverse effect of the DHSP is permanent damage to desert habitats, which would adversely affect the long-term productivity of the area, as described in Section 4.21. Mitigation Measure VEG-6 would provide off-site compensation to impacts to vegetation and habitat and compensation lands would be placed under conservation management reducing the long term detrimental effect of the proposed project and alternatives.

Short-term benefits of the DHSP include production of renewable energy. This benefit would be consistent with federal and state goals to increase production of renewable energy and help reduce dependence on fossil fuels. Based on the project expected generation of over 300,000 megawatt-hours (MWh) annually and a system-wide greenhouse gas (GHG) emission factor of 681 pounds of carbon dioxide equivalents per MWh (lbs CO2e/MWh) for electricity provided by California utilities (USEPA 2011) including SCE, the energy produced by the DHSP could displace up to 92,670 metric tons of CO2e per year (MTCO2e/year) that may otherwise be emitted by power plants currently generating electricity for the California system. This displacement of fossil fuel use could occur if the intermittent solar energy produced by the DHSP were fully integrated into the region-wide electrical grid and used to offset higher polluting power plants. The integration of renewable resources into the region-wide electrical grid is controlled by the California Independent System Operator (CAISO), and is beyond the control of the BLM or the project Applicant. Global climate change is expected to have long-term adverse impacts on the natural and human environment. To the extent that the DHSP could contribute to global reductions in GHGs, this would be a long-term benefit of the project in offsetting impacts related to global climate change.

# Section 4.24

## Summary of Unavoidable Adverse Effects

## 4.24 SUMMARY OF UNAVOIDABLE ADVERSE EFFECTS

Table 4.24-1 summarizes unavoidable adverse effects of the proposed project and the action alternatives. Table 4.24-2 presents a summary of CEQA significant and unavoidable impacts, and is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies. Because this project is being analyzed in an EIS under NEPA, there is no requirement for the BLM to determine significance, rather, the BLM must take a "hard look" at the impacts of the alternatives. Therefore, any determination of significance is a determination under CEQA, not NEPA.

**Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects**

| Impact Area | Impact | Description |
|---|---|---|
| Air Resources | Construction emissions | Construction of the project would generate emissions of particulate matter (PM2.5 and PM10), VOC, CO, and NOx. Mitigation Measures AIR-1 through AIR-4 would limit these emissions to the extent possible, but models suggest that residual impacts from PM10, VOC, CO, and NOx would be present event with mitigation. Impacts would be temporary, limited to the duration of construction activities. |
| Biology – Vegetation | On-site habitat loss | Construction and operation of the project would disturb vegetation and habitat during construction and operation. Mitigation Measures VEG-1 through VEG-10 would minimize on-site impacts and provide off-site compensation, but impacts would not be completely eliminated. |
| | Off-site dust | Dust and erosion related to construction and operation of the project could not be completely contained within the project site, and could impact neighboring habitats, soil, and vegetation. Mitigation measures for biological resources and air quality would limit but not eliminate these impacts. |
| | On-site special status species | The project would directly remove several special status plants occurring on the project site. Mitigation Measure VEG-7 would reduce these impacts through off-site compensation, but it would not eliminate on-site impacts. |
| | State-jurisdictional streambeds | The project would impact state-jurisdictional streambeds on and off site through removal and degradation of habitat and vegetation. Mitigation measures for biological resources and water resources would limit, but not eliminate, these impacts. |
| Biology – Wildlife | On-site habitat loss | The project would disturb wildlife habitat during construction and operation. Impacts to habitat would be reduced by Mitigation Measures VEG-1 through VEG-10. Mitigation Measure VEG-6 specifically requires off-site compensatory habitat protection. Avoidance-related measures for wildlife would also reduce impacts. These measures would reduce, but not eliminate, loss of habitat. |
| | Habitat fragmentation | Construction of the project would fragment and impair the connectivity of wildlife habitat in the upper Chuckwalla Valley. Mitigation measures for wildlife, including Mitigation Measure WIL-9 (contribute to Desert Tortoise Population Connectivity Effectiveness Monitoring Plan), would reduce these effects, but the project would still result in habitat fragmentation. |
| | Effects on adjacent off-site habitat | Construction, O&M, and decommissioning would create noise, lighting, dust and other disturbances that would affect adjacent off-site habitat. These effects would be minimized by mitigation measures for noise, aesthetics, air quality, and biological resources. However, these impacts would not be eliminated. |

**Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects**

| Impact Area | Impact | Description |
|---|---|---|
| | Displacement of wildlife | Wildlife displaced by the project would need to establish new home ranges and would compete for food and other resources with off-site wildlife. Mitigation measures for biological resources would reduce, but not eliminate, these impacts. |
| | Potential loss of birds during O&M | An unquantified number of birds would be killed during project O&M activities. Mitigation measures for biological resources, particularly Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) would reduce, but not eliminate, these impacts. |
| Climate Change | No residual impacts | |
| Cultural | Adverse change to historic and archaeological resources | The project would result in direct and indirect impacts during construction, operation, and decommissioning to cultural resources, including adverse change to significance of historic resources and adverse changes to the significance of archaeological resources. Mitigation Measures MM CUL-1 through MM CUL-9 would reduce impacts by developing and implementing a Memorandum of Agreement and Historic Properties Treatment Plan, requiring monitoring and training for all construction personnel, and treating/curating inadvertent discoveries. |
| Paleontological Resources | No residual impacts | |
| Fire and Fuels Management | No residual impacts | |
| Geology and Soils | No residual impacts | |
| Mineral Resources | No residual impacts | |
| Grazing | No residual impacts | |
| Wild Horses and Burros | No residual impacts | |
| Lands and Realty | Cumulative adverse change to land use along the I-10 corridor due to the scale of land use conversion | The project would contribute to large scale of land use conversion (over 52,000 acres or 2.5 percent of the land along the I 10 corridor). |
| Noise and Vibration | Increase in noise levels along Kaiser Road | The project would result in a substantial increase in traffic noise levels during construction and decommissioning along Kaiser Road north of Lake Tamarisk Road. Mitigation Measure NOI-1would limit construction activities to daylight hours; however, there would still be an unavoidable adverse effect from increased noise. |
| Public Health and Safety | No residual impacts | |
| Recreation | Effects on wilderness experience | The project would be visible from wilderness areas in the Coxcomb Mountains during construction, operation, and decommissioning. While Mitigation Measures VR-1 through VR_6 would reduce these impacts, there would still be an avoidable adverse effect on wilderness recreation. |
| Social and Economic Setting | No residual impacts | |

**Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects**

| Impact Area | Impact | Description |
|---|---|---|
| Environmental Justice | No residual impacts | |
| Special Designations | No residual impacts | |
| Transportation and Public Access | No residual impacts | |
| Visual Resources | Land scarring and vegetation clearance | Construction of the project would require extensive land scarring and vegetation clearance. Mitigation Measures VR-1 and VR-2 would reduce the visual impacts of these activities, but would not eliminate impacts, which would be long-term and unavoidable. |
| | Structural visual contrast | The project site is visible from a large area and the project would introduce extensive structural visual contrast. Mitigation Measures VR-2 through VR-5 would reduce the impacts of this visual contrast, but unavoidable long-term adverse effects would remain. |
| | Effects on scenic vistas | The project would be visible from surrounding wilderness areas. Mitigation Measures VR-2 through VR-5 would reduce effects on scenic vistas, but unavoidable adverse effects would remain. |
| | Inconsistency with public policy | The project would not meet applicable Interim VRM Class III management objectives, even with the implementation of mitigation measures for visual resources. The project would also conflict with numerous Riverside County General Plan policies. |
| Water Resources | No residual impacts | |
| Solid and Hazardous Wastes | No residual impacts | |

**Table 4.24-2. CEQA Significant Unavoidable Impacts**

| Impact Area | Significance Criteria | Significant Unavoidable Impact | Description |
|---|---|---|---|
| Air Resources | AR-2 | Construction emissions | Construction of the project would generate emissions of particulate matter (PM2.5 and PM10), VOC, CO, and NOx. Mitigation Measures AIR-1 through AIR-4 would limit these emissions to the extent possible, but residual impacts from PM10, VOC, CO, and NOx would still be present after mitigation. Significant, unavoidable impacts would be temporary; these impacts would be limited to the duration of construction activities. |
| Biology – Vegetation | VEG-1 | Cumulative impacts to sensitive natural communities | Even with implementation of Mitigation Measures VEG-1 through VEG-10, the project would represent a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities. |
| | VEG-2 | Cumulative impacts to jurisdictional streambeds | Even with implementation of Mitigation Measures VEG-1 through VEG-10, the project would represent a considerable contribution to the cumulatively significant regional impacts state-jurisdictional streambeds. |

**Table 4.24-2. CEQA Significant Unavoidable Impacts**

| Impact Area | Significance Criteria | Significant Unavoidable Impact | Description |
|---|---|---|---|
| Biology - Wildlife | WIL-1 | Cumulative impacts to special-status species | Even with implementation of mitigation, the residual impacts of the project would represent a considerable contribution to cumulatively significant habitat loss for special-status wildlife species in the NECO planning area. |
|  | WIL-2 | Cumulative impacts to wildlife movement | Even with implementation of mitigation, the residual impacts of the project would represent a considerable contribution to reduced wildlife movement and connectivity in the upper Chuckwalla Valley. |
| Climate Change |  | None |  |
| Cultural | CR-1 and CR-2 | Adverse change to historic and archaeological resources | The project would result in direct and indirect impacts during construction, operation, and decommissioning to cultural resources, including adverse change to historic resources and adverse changes to archaeological resources. Mitigation Measures MM CUL-1 through MM CUL-9 would reduce impacts by developing and implementing a Memorandum of Agreement and Historic Properties Treatment Plan, requiring monitoring and training for all construction personnel, and treating/curating inadvertent discoveries. However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be significant and unavoidable under CEQA. |
| Paleontological Resources |  | None |  |
| Fire and Fuels Management |  | None |  |
| Geology and Soils |  | None |  |
| Mineral Resources |  | None |  |
| Grazing |  | None |  |
| Wild Horses and Burros |  | None |  |
| Lands and Realty |  | None |  |
| Noise and Vibration | NZ-4 | Increase in noise levels along Kaiser Road | The project would result in a substantial increase in traffic noise levels during construction and decommissioning along Kaiser Road north of Lake Tamarisk Road. Mitigation Measure NOI-1would limit construction activities to daylight hours; however, there would still be a significant unavoidable impact from project construction. |
| Public Health and Safety |  | None |  |
| Recreation |  | None |  |
| Social and Economic Setting |  | None |  |

Table 4.24-2. CEQA Significant Unavoidable Impacts

| Impact Area | Significance Criteria | Significant Unavoidable Impact | Description |
|---|---|---|---|
| Environmental Justice | | None | |
| Special Designations | | None | |
| Transportation and Public Access | | None | |
| Visual Resources | V-1 | Scenic vistas | Project would be prominently visible from elevated vantage points in the area, and the introduction of industrial character and structural visual contrast would result in significant unavoidable impacts to these scenic vistas. |
| | V-3 | Degrade visual character of the landscape | Project would introduce a prominent built facility with considerable industrial character into an existing landscape presently without such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas. |
| | V-5 | Long-term inconsistency with established BLM VRM class objectives | The moderate to high degree of visual change that would be caused by the project (as viewed from I-10) would result in a long-term (greater than five years) inconsistency with the applicable Interim VRM Class III. |
| | V-6 | Inconsistency with local policies | The moderate to high degree of visual change that would be caused by the proposed solar farm would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. |
| | V-7 | Cumulative visual alteration | The presence of the project would substantially contribute to cumulative visual alteration. |
| Water Resources | | None | |
| Solid and Hazardous Wastes | | None | |

# CHAPTER 5

## Consultation, Coordination, and Public Participation

# CHAPTER 5 – CONSULTATION, COORDINATION, AND PUBLIC PARTICIPATION

## 5.1 SUMMARY OF THE NEPA PROCESS

This section describes the NEPA Process. The BLM relies on the NEPA Handbook H-1790-1 as guidance for complying with NEPA and the Council on Environmental Quality's NEPA regulations (40 CFR Parts 1500-1508) and the Department of the Interior NEPA Manual.

### Scoping Process

The BLM authorization of a Right-of-Way (ROW) grant for the proposed project or an action alternative would require a resource management land use plan amendment (PA) to the California Desert Conservation Area (CDCA) Plan (BLM 1980), as amended. The BLM prepared the Draft EIS to inform the public about the DHSP and to meet the needs of federal, state, and local permitting agencies considering the project. Scoping is required by NEPA pursuant to the Council on Environmental Quality (CEQ) (40 CFR 1501.7) regulations. The process ensures that significant issues, alternatives, and impacts are addressed in environmental documents and determines the degree to which these issues and impacts will be analyzed in the EIS.

The scoping process includes the following:

- Publishing the Notice of Intent (NOI) to prepare an EIS.
- Conducting public scoping meetings and agency consultation meetings.
- Documenting all public and agency comments received for the Proposed Action in a Scoping Summary Report (Appendix B).

#### *Notice of Intent*

The BLM published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) on September 15, 2011 in Federal Register Volume 76, Number 179. Publication of the NOI began a 30-day comment period that ended on October 17, 2011. The BLM provided a website with project information that describes the various methods for providing public comment on the project including an e-mail address where comments could be sent electronically.

#### *Public Scoping Meetings*

Notification for public Scoping Meetings held on October 3 and October 6, 2011 was posted on the BLM's website. In addition, notices were sent to Responsible and Trustee Agencies under CEQA, all landowners within 300 feet of the project boundary, and other interested parties.

Public Scoping Meetings were held on October 3, 2011 at the University of Riverside Palm Desert Graduate Center located at 75080 Frank Sinatra Drive in Palm Desert, California and at the Lake Tamarisk Clubhouse located at 6251 Parkview Drive in Desert Center, California. A public Scoping Meeting was held on October 6, 2011 at the Joshua Tree Community Center located at 6171 Sunburst Street in Joshua Tree, California. A presentation describing the project was made by enXco, with presentations describing the environmental review process presented by members of the BLM. Attendees were documented by signing in on a voluntary sign-in sheet, including 6 attendees plus KMIR TV at the University of Riverside Palm Desert Graduate Center, 30 attendees at the Lake Tamarisk Clubhouse, and 7 attendees at the Joshua Tree Community Center.

Fifteen comment letters were received during the scoping comment period that ended on October 17, 2010. Comments were received on the following categories: purpose and need, alternatives development, climate change, cultural resources, fire and fuels management, lands and realty, recreation, social and economic values, environmental justice, water resources, solid and hazardous wastes, visual resources, and cumulative effects. A summary of these comments is provided in the Scoping Summary Report (Appendix B). Comments received during the scoping process were addressed in the EIS as presented in Table 5-1.

**Table 5-1. Scoping Comments Addressed in this Draft EIS**

| Issue Area | Addressed |
|---|---|
| Purpose and Need | Section 1.2 BLM Purpose and Need |
| Monitoring | Appendix J (Final EIS Only) |
| Decommissioning | Section 2.5.7 Decommissioning Activities |
| Public Participation | Chapter 5 & Appendix B |
| **Air Resources** | |
| Existing conditions | Section 3.2.2 |
| Project emissions | Section 4.2.6, Tables 4.2-3 through 4.2-8 |
| Dust control | Section 4.2.6 |
| Cumulative impacts | Section 4.2.15 |
| Effects to Joshua Tree National Park | Section 4.2.6 and Section 4.17.15 |
| **Biological Resources** | |
| Endangered species and habitat | Section 4.4.7 |
| Desert tortoise & habitat | Section 4.4.7: Desert Tortoise |
| Biological opinion and USFWS | Section 4.4.7: MM WIL-2 |
| Avian species | Section 4.4.7: Native Birds, Burrowing Owl, Golden Eagle, Raptors, Woodpecker, Paserines |
| Wildlife corridors | Section 4.4.7: Wildlife Movement |
| Mitigation lands | Section 4.3.7: MM VEG-6, Table 4.3-3 |
| Sensitive Plant Species | Section 4.3.7: Special-Status Plants |
| Invasive Weeds | Section 4.3.7: Invasive Weeds |
| Sand Transport Corridor | Section 4.3.15: Alternative E |
| **Climate Change** | |
| Benefits of solar energy | Section 4.5.6 Operations and Maintenance |
| Address climate change and carbon footprint of the project | Section 4.5.6 Tables 4.5-1 and 4.5-2 and Indirect Effects |
| Mitigation to reduce greenhouse gas emissions | Section 4.5.6 Mitigation Measures |
| Amount of SF6 gases that would be released by the project | Section 4.5.6 |
| **Cultural Resources** | |
| Native American Consultation | Section 5 |

**Table 5-1. Scoping Comments Addressed in this Draft EIS**

| Issue Area | Addressed |
|---|---|
| Native American sacred sites | Section 4.6.5 and Section 5 |
| Avoidance of cultural resources | Section 4.6.5 |
| California Code §27460 should be followed in case of accidental discovery of human remains | Section 3.6.1, State and Section 4.6.16 |
| **Fire and Fuels Management** | |
| Wildfire Risk | Section 4.8.6 |
| Fire study on cadmium-telluride containing panel | Section 4.13.6 |
| **Lands and Realty** | |
| Solar Programmatic EIS | Section 4.13.6: Direct Effects |
| Conflicts with federal, state, tribal, or local land policies | Section 4.13.6 |
| Conflicts with the Eagle Mountain Pumped Storage Project | Section 4.13.6: Direct Effects |
| Conflicts with rural communities | Section 4.13.6 |
| Conflicts with National Parks | Section 4.13.6 and Section 4.17.15 |
| BLM land management policy; role of County/CEQA | Section 1.2, Section 1.8, and Section 4.13.6 |
| **Recreation** | |
| Impacts to Joshua Tree National Park | Section 4.14.6 and Section 4.17.15 |
| Impacts to Lake Tamarisk recreational opportunities | Section 4.14.6 |
| **Social and Economics Setting** | |
| influx of people to Desert Center | Section 4.15.6 Quality of Life |
| Housing | Section 4.15.6 Direct Effects |
| Property Values | Section 4.15.6 Indirect Effects |
| Effects to utilities | Section 4.15.6 Direct Effects |
| **Environmental Justice** | |
| Address environmental justice | Section 3.16 and 4.16 |
| **Water Resources** | |
| Disclose water requirements | Section 2.5.5 Construction Water Requirements, Section 2.5.6 Operational Water |
| Impacts to groundwater basin | Section 4.20.6 Groundwater Supply and Recharge |
| Use of non-groundwater sources/water conservation | Section 4.20.6, MM WAT-2 |
| Water quality/SWPPP | Section 4.20.6 Surface Water and Drainage Patterns, Water Quality, MM WAT-1 and MM WAT-4 |
| Minimize impacts to water/washes | Section 4.22.6 Surface Water and Drainage Patterns, Section 4.3.7 Hydrology and Groundwater |
| Jurisdictional delineation | Section 4.22.6 Jurisdictional Drainages, Section 4.3.2, Table 4.3-1 and MM VEG-1 through VEG-6 |
| **Solid and Hazardous Waste** | |
| Hazardous wastes/management | Section 4.21.6, MM PHS-1 through PHS-6 |

**Table 5-1. Scoping Comments Addressed in this Draft EIS**

| Issue Area | Addressed |
|---|---|
| Life cycle of panels/recycling | Section 4.13.6, Hazardous Materials, AM-HAZ-10, MM PHS-1, MM PHS-6 |
| Remediation of contaminated sites at solar facility/Phase I or Phase II Environmental Site Assessment | Section 4.13.6 Existing Contamination |
| Investigation of hazardous materials if buildings are being demolished | No buildings would be demolished |
| Soil Sampling/investigation | Section 4.13.6 Existing Contamination |
| **Visual Resources** | |
| Impacts to wilderness character/Joshua Tree National Park | Section 4.19.6 Effects Context for Joshua Tree Wilderness and National Park, KOP1 and KOP2, |
| KOPs should depict all visual impact scenarios | Section 3.19.2 Key Observation Points |
| Light Pollution | Section 4.19.6 MM VR-6 |
| **Cumulative Impacts** | |
| Consider all existing and reasonably foreseeable projects | Section 4.1.4, Cumulative Scenario and Tables 4.1-1 and 4.1-2 |
| Analysis should consider approved Desert Sunlight Solar Farm | Section 4.1.4, Cumulative Scenario and Tables 4.1-1 and 4.1-2 |
| **Alternatives** | |
| Types of panels | Section 2.5.4 Photovoltaic Panels |
| Environmentally sensitive areas | Section 2.7 |
| Siting renewable energy on disturbed/degraded lands | Section 2.17.2 |
| Comparison of alternatives | Section 2.14 |
| Environmentally preferred alternative | Section 2.14 and 2.16 |
| Shared gen-tie line alignment | Section 2.10 |
| Desert wash avoidance | Section 2.7 |
| Mount panels at a height to maintain natural vegetation | Section 2.17.10 |
| Distributed generation/power sited next to consumption | Section 2.17.4 |
| Avoid southwestern portion of project/avoids Desert Dry Wash Woodland/avoids siting within the WHMA | Section 2.6 and Section 2.7 |
| Make the site unavailable for energy development | Section 2.4 |
| Reduce impacts to Joshua Tree National Park | Section 2.7, Section 2.8, and Section 2.17 |

In addition, an agency recommended that the EIS include an alternative that would mount panels at a height to eliminate the need for vegetation clearing and would maintain natural vegetation. While mitigation to protect, maintain, and restore native vegetation is described in Section 4.3, no alternative PV technology, mounting system, or mounting height was identified by the EIS preparers that could achieve permanence of appreciable amounts of native vegetation on the solar project site. Therefore, this alternative was not considered.

Finally, a commenting agency recommended that the EIS fully consider a desert or ephemeral wash avoidance alternative. Alternatives 6 (Reduced Footprint Solar Project) and Alternative 7

(High-Profile Reduced Footprint Solar Project) would exclude the 155-acre southern parcel of the project and would not require an underground electrical connection across the wash.

### Draft EIS

The BLM published a Notice of Availability (NOA) for public and agency review and comment of the Desert Harvest Solar Project Draft EIS and CDCA Plan Amendment on April 13, 2012 in the Federal Register. A 90-day comment period is required for the project and would end July 13, 2012.

During the public review period, the BLM will host public meetings to solicit input from members of the communities and others in the vicinity of the proposed project and alternatives. Information regarding the location and times of the meetings is published on the BLM's website for the project. Comments on the Draft EIS will be considered and addressed in the Final PA/EIS.

### Final EIS

Following public review of the Draft EIS, the lead agency prepares a Final EIS. The BLM and EPA's Office of Federal Activities will publish NOAs for the Final EIS in the Federal Register when the document is ready to be released to the public.

### Appeal Period and Protest

A protest is an opportunity for a qualified party (any person who participated in the planning process and has an interest which is or may be adversely affected) to seek an administrative review of a proposed decision in accordance with program-specific regulations. The NOA for the Final EIS (to be published by EPA in the Federal Register) will initiate a 30-day protest period on the proposed PA to the Director of the BLM in accordance with 43 CFR 1610.5-2.

### Governor's Consistency Review

Pursuant to 43 C.F.R. § 1610.3-2, prior to the approval of a proposed resource management plan, or amendment, the BLM State Director must submit to the State Governor the proposed plan or amendment and identify any known inconsistencies with State or local plans, policies or programs. The Governor has 60 days in which to identify inconsistencies and provide recommendations in writing. If the Governor's written recommendations include changes in the proposed PA that were not raised during the public participation process, then the State Director must provide the public with an opportunity to comment on the recommendations. If the BLM State Office does not accept the Governor's recommendations, then the BLM State Director must notify the Governor in writing and the Governor has 30 days to submit a written appeal.

### Record of Decision

After any protests have been resolved, BLM may publish an Approved Plan Amendment and a Record of Decision (ROD) on the Project Application. Publication and release of the ROD would serve as public notice of the BLM's decision on the Project Application which is appealable in accordance with 43 CFR Part 4.

## 5.2 ORGANIZATIONS AND PERSONS CONSULTED

There are a number of formal and informal agreements in place that provide guidance on the relationship between BLM, as Lead Agency on the EIS, and other agencies. These agreements are summarized here.

### BLM–County of Riverside Memorandum of Understanding

The County of Riverside has discretionary authority to issue a Conditional Use Permit (CUP), a Public Use Permit (PUP), a Franchise Route Agreement, and an Encroachment Permit for Project gen-tie, evaluated herein as a portion of the Proposed Action. As allowed by the California Environmental Quality Act (CEQA) Guidelines Section 15221, the County of Riverside intends to use this EIS to provide the environmental review required for its decision regarding the approval of the gen-tie under CEQA. The County of Riverside and the BLM have signed an MOU that defines the relationship of the two agencies, and identifies the County of Riverside as a cooperating agency with the BLM. Following preparation of the EIS by the BLM, the County of Riverside will determine whether the EIS complies with the requirements of CEQA and whether it will be used to support its decision on the gen-tie.

### Native American Government to Government Consultation

The United States Bureau of Land Management (BLM) has formally invited 15 Native American Tribes to consult at the government-to-government level throughout the review of the Desert Harvest Solar Project (DHSP), and has had on-going discussions about this project with Tribal cultural staff and other Tribal organizations pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). Documentation regarding that consultation is provided in Appendix I. Consultation with tribes has been initiated and will continue throughout the NEPA and Section 106 compliance processes. Consultation with Indian Tribes, and discussions with Tribal organizations and individuals, has revealed concern about the importance and sensitivity of cultural resources near the DHSP project site, concern about cumulative effects to cultural resources and landscapes.

The Native American Heritage Commission (NAHC) maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans, referred to here as ethnographic resources. The NAHC Sacred Lands database has records for places and objects that Native Americans consider sacred or otherwise important, such as cemeteries and gathering places for traditional foods and materials. The NAHC Contacts database has the names and contact information for individuals, representing a group or themselves, who have expressed an interest in being contacted about development projects in specified areas. The applicant requests information from the NAHC on the presence of sacred lands in the vicinity of a proposed project and also request a list of Native Americans to whom inquiries would be made to identify both additional cultural resources and any concerns the Native Americans may have about a proposed project.

Chambers Group contacted the Native American Heritage Commission (NAHC) in October of 2011 to obtain information on known cultural resources and traditional cultural properties and to learn of any concerns Native Americans may have about the DHSP. The NAHC responded on October 5, 2011 with the information that the Sacred Lands File (SLF) database failed to indicate the presence of Native American cultural resources within the DHSP Area of Potential Effects.

The NAHC also forwarded a list of Native American groups or individuals with traditional ties to the project area. This list can be found in Appendix I.

The BLM initiated formal, government-to-government tribal consultation at the earliest stages of project planning by letter on October 4, 2011 (Kalish 2011). The Palm Springs-South Coast Field Office of the BLM sent letters to 15 Indian tribes, including those identified by the NAHC. The letter requested assistance in identifying any issues or concerns that a tribe might have about the project, including identifying places of religious and cultural significance that might be affected by the proposed project. The letter further requests that each Tribal Government identify those tribal representatives who have been designated to consult with BLM on this project.

Since that time, the BLM has followed up with Tribal governments through additional correspondence, communication, and provision of other project information. Consultation with Indian Tribes on this project is ongoing.

The fifteen tribes currently being consulted with on the DHSP are: Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Mission Indians, Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Fort Yuma Quechan Indian Tribe, Morongo Band of Mission Indians, Ramona Band of Mission Indians, San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians, Torres-Martinez Desert Cahuilla Indians, and the Twentynine Palms Band of Mission Indians.

DHSP shares transmission line alternatives and an interconnection with the Red Bluff Substation with the DSSF project. The Memorandum of Agreement for the DSSF project identified indirect adverse effects to the settings of the National Register of Historic Places (NRHP) listed North Chuckwalla Mountain Petroglyph District (NCMPD) and the (Chuckwalla Valley) Prehistoric Trails Network Cultural Landscape (PTNCL). In addition cumulative effects to cultural resources were identified. Similar effects may be identified by the tribes for the DHSP.

As the environmental review and Section 106 consultation processes move forward for the DHSP project, the BLM will continue to consult with Indian tribes regarding issues or concerns with the project, and on properties to which they attach cultural or religious significance.

### Section 106 Consultation

The BLM complies with NHPA through a Nationwide Programmatic Agreement (NPA) and, in the state of California, a 2007 State Protocol Agreement. The Protocol Agreement (Protocol) is a modified version of the NPA, adapted to the unique requirements of managing cultural resources on public lands in California, and is used as the primary management guidance for BLM offices in the state. This Protocol allows BLM's cultural resource staff to act on the SHPO's behalf under limited circumstances. BLM may define areas of potential effect (APE) and the required level of inventory efforts, and make determinations of eligibility and the effects of undertakings without consulting with SHPO.

### National Park Service Consultation

The National Park Service (NPS), Joshua Tree National Park, is a Cooperating Agency for preparation of this EIS. Although NPS has no discretionary decision to issue on the proposed project, NPS has an interest in land development projects that occur within the airshed and viewshed of park resources. On April 20, 2011, BLM met with NPS representatives in Palm Springs, CA to discuss the project and the Cooperating Agency relationship. BLM met with NPS again on September 13, 2011 to discuss incorporation of NPS comments on the administrative draft of the EIS. Comments were received from NPS staff and incorporated into the Draft EIS.

### Endangered Species Act

The BLM is engaging the U.S. Fish and Wildlife Service (USFWS) in the Endangered Species Act (ESA) Section 7 consultation process concurrently with the NEPA review process and will obtain authorization through an incidental take statement, as necessary. Biological surveys for federally-listed species have been conducted for the proposed project site and the proposed transmission alternatives B, C, and D. Surveys will be conducted for transmission alternative E in the spring 2012.

California Endangered Species Act (CESA) review and approval is required for impacts to State-listed species. Focused biological surveys for sensitive species have been conducted for all potential project areas. The California Department of Fish and Game (CDFG) is expected to complete a Consistency Determination based upon USFWS's Biological Opinion.

### Other Agency Coordination

The Applicant is coordinating with the U.S. Army Corps of Engineers, regarding potential project approvals and any associated NEPA regulatory compliance requirements. The Applicant is also coordinating with state and local agencies, including the California Energy Commission, California Department of Transportation, Metropolitan Water District of Southern California, California Regional Water Quality Control Board, and South Coast Air Quality Management District regarding potential project approvals and any associated State and local regulatory compliance requirements.

## 5.3 SUMMARY OF COMMENTS RECEIVED ON THE DRAFT EIS

The Final PA/EIS will present a summary of comments received on the Draft EIS.

## 5.4 ADMINISTRATIVE REMEDIES

The BLM and the EPA's Office of Federal Activities will publish separate NOAs for the Final EIS/Proposed PA in the Federal Register when the document is ready to be released to the public. The NOA (that is published by the EPA in the Federal Register) will initiate a 30-day protest period on the Proposed PA. Protests are directed to the Director of the BLM (see "Appeal Period and Protest" in Section 5.1, above) in accordance with 43 CFR 1610.5-2. Additionally, the BLM may accept additional public comment during this period. If this comment period occurs, all substantive comments will be reviewed and responded to with the Record of Decision (ROD).

Following resolution of any protests, the BLM may publish a ROD, which may approve a PA, on the project application. Publication and release of the ROD would serve as public notice of the BLM's decision on the project application which is appealable in accordance with 43 CFR Part 4.

# CHAPTER 6

## List of Preparers

# CHAPTER 6 – LIST OF PREPARERS

Though individuals have primary responsibility for preparing sections of the Draft Plan Amendment and Draft EIS, the document is an interdisciplinary team effort. In addition, internal review of the document occurs throughout preparation. Specialists at the BLM's Field Office, State Office, and Washington Office review the analysis and supply information, as well as provide document preparation oversight. Contributions by individual preparers may be subject to revision by other BLM specialists and by management during internal review. Table 6.1 presents an alphabetical list of preparers providing extensive input by agency or group. (Some reviewers and BLM employees and contractors providing editing and rewriting assistance are not included.)

**Table 6.1. List of Preparers**

| Name | Job Title / Primary Responsibility |
|---|---|
| **BLM – California Desert District Office** | |
| Elser, Lynnette | Project Manager, Planning and Environmental Coordinator |
| Thomsen, Greg | Project Manager |
| Thomas, Tiffany | Archaeologist |
| Queen, Rolla | Archaeologist |
| Marsden, Kim | Wildlife Biologist |
| Dalton, John | Visual Resource Management |
| **BLM – State Office** | |
| Meyer-Shields, Elizabeth | Planning and Environmental Coordinator |
| Wick, Robert | Visual Resource Management |
| **BLM – Washington Office** | |
| Kuizon, Lucia | Paleontologist |
| McCarty, John | Visual Resource Management |
| **National Park Service – Joshua Tree National Park** | |
| Butler, Mark | Superintendent |
| Compton, Andrea K. N. | Chief of Resources |
| Sabala, Luke C. | Branch Chief Physical Scientist |
| **County of Riverside** | |
| Baez, Ken | Senior Planner |
| Neal, Gregory A. | Deputy Director, Planning Department |
| North, Tiffany | Deputy County Counsel |
| Olivas, Jay | Planner |
| **Aspen Environmental Group** | |
| Bagwell, Beth | Cultural Resources, Paleontological Resources |
| Birdsall, Brewster | Air Resources, Climate Change, Noise |
| Blewitt, Lisa | Noise |
| Capello, Emily | Deputy Project Manager, Alternatives, Cumulative Projects, Transportation and Public Access |
| Hawkins, Jacob | Social and Economic Setting, Environmental Justice, Lands and Realty, Special Designations |
| Huntley, Christian | Biological Resources (Senior) |

**Table 6.1. List of Preparers**

| Name | Job Title / Primary Responsibility |
|---|---|
| Hwang, Insun | Air Resources, Climate Change, Public Health and Safety |
| Lancaster, Jennifer | Biological Resources |
| Lee, Susan | Principal-in-Charge |
| McInturff, Alex | Fire and Fuels, Minerals, Grazing, Recreation |
| Mescher, Aubrey | Soil Resources, Mineral Resources, Water Resources |
| Mitchell, Marisa | Project Manager |
| Morris, Amy | Management Support |
| Noorzay, Akbar | Geographic Information Systems, Graphics |
| Ray, Dustin | Biological Resources |
| Simpson, Kati | Graphics |
| Tangard, Mark | Editing and Review, Document Production |
| Varonin, Jared | Biological Resources |
| White, Scott | Biological Resources (Senior) |
| Wood, Justin | Biological Resources |
| **Michael Clayton Associates** | |
| Clayton, Michael | Visual Resources |
| **Hernandez, Kroone, and Associates** | |
| Cooper, Nancy J. | Traffic and Transportation Analysis |

# CHAPTER 7

## References

# CHAPTER 7 – REFERENCES

## SECTION 2 – DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

AWEA (American Wind Energy Association). 2011. Industry Statistics. http://www.awea.org/learnabout/industry_stats/index.cfm. Accessed September 2011.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. National Environmental Policy Act Compliance for Utility-Scale Renewable Energy Right-of-Way Authorizations. Instruction Memorandum No. 2011-059. U.S. Department of Interior, BLM, Washington, D.C.

2010. Geothermal Energy in California. http://www.energy.ca.gov/geothermal/. Accessed September 2011.

CEC (California Energy Commission). 2009. Integrated Energy Policy Report 2009. http://www.energy.ca.gov/2009publications/CEC-100-2009-003/CEC-100-2009-003-CMF.PDF. Accessed September 2011.

_____. 2008. An Assessment of Biomass Resources in California, 2007. http://biomass.ucdavis.edu/files/reports/2008-cbc-resource-assessment.pdf. Accessed September,2011.

CPUC (California Public Utilities Commission). 2011. June 2011: California Solar Initiative 2011 Annual Program Assessment (Legislative Report). http://www.cpuc.ca.gov/PUC/energy/Solar/apa2011.htm. Accessed September 2011.

EERE (Energy Efficiency and Renewable Energy) 2008. Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2008. http://www.nrel.gov/docs/fy08osti/43025.pdf. Accessed April 2012.

enXco. 2011a. Desert Harvest Solar Plan of Development. Submitted to Bureau of Land Management Plan Springs-South Coast Field Office, CA. April.

_____. 2011b. Responses to Data Request #1. October 5, October 11, October 12, and October 13.

_____. 2011c. Response to ROW width request. October 20.

_____. 2011d. Responses to Data Request #2. October 24 and October 25.

_____. 2011e. Responses to Data Request #3. October 28.

## SECTION 3.2 – AIR RESOURCES

CARB (California Air Resources Board). 2011a. Ambient Air Quality Standards available on ARB Website. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed September 2011.

_____. 2011b. Portable Equipment Frequently Asked Questions. http://www.arb.ca.gov/portable/perp/perpfaq.pdf. Accessed September 2011.

_____. 2011c. Air Designation Maps available on ARB website. http://www.arb.ca.gov/desig/adm/adm.htm. Accessed September 2011.

_____. 2011d. ARB Top 4 Measurements and Days Above the Standard. Online: http://www.arb.ca.gov/adam/topfour/topfour1.php

_____. 2008a. Advisory Number 377: New Idling Limits for Owners, Operators, Renters or Lessees of In-Use Off-Road Diesel Vehicles, Effective 6/15/08. http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm. Accessed September 2011.

_____. 2008b. Written Idling Policy Guidelines. http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed September 2011.

IMPROVE (Interagency Monitoring of Protected Visual Environments). 2011. IMPROVE Data Resources. http://vista.cira.colostate.edu/improve/Data/IMPROVE/summary_data.htm. Accessed September 2011.

McAuliffe, Joseph R. 2011. Desert Soils. http://www.desertmuseum.org/books/nhsd_desert_soils.php. Accessed September 2011.

SCAQMD (South Coast Air Quality Management District). 2005. Rule 403: Fugitive Dust. http://www.aqmd.gov/rules/reg/reg04/r403.pdf. Accessed September 2011.

USEPA (United States Environmental Protection Agency). 2011a. Currently Designated Non-attainment Areas for All Criteria Pollutants. http://www.epa.gov/oar/oaqps/greenbk/ancl.html. Accessed September 2011.

_____. 2011b. Clean Air Status and Trends Network (CASTNET). http://java.epa.gov/castnet/index.jsp. Accessed September 2011.

## SECTION 3.3 – BIOLOGICAL RESOURCES – VEGETATION

Baldwin, B. G., S. Boyd, B. J. Ertter, R. W. Patterson, T. J. Rosatti, D. Wilken, and M. Wetherwax (eds.). 2002. The Jepson Desert Manual: Vascular Plants of Southeastern California. University of California Press, Berkeley, California.

Bell, D. 2009. Noteworthy collection Riverside County, California (*Cynanchumutahense*). Crossosoma 35:96.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. Record of Decision – Desert Sunlight Solar Farm Project and Amendment to the California Desert Conservation Area Land Use Management Plan, Riverside County, California. Palm Springs–South Coast Field Office. August.

_____. 2011b. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

_____. 2011c. Plan Amendment/Final EIS for the Genesis Solar Energy Project. Palm Springs–South Coast Field Office. May.

_____. 2010a. Plan Amendment/Final EIS for the Palen Solar Power Project. Palm Springs–South Coast Field Office. August.

_____. 2010b. Special status plants. BLM California State Director's Office, Sacramento. http://www.blm.gov/ca/st/en/prog/ssp.html. Accessed 3 Oct 2011.

_____. 2009. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species. BLM, California State Office, Sacramento.

BLM and CDFG (Bureau of Land Management and California Department of Fish and Game). 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan and Final Environmental Impact Statement. Prepared by the BLM California Desert District Office and the CDFG Inland, Desert and Eastern Sierra Region. July.

Bossard, C. C., J. M. Randall, and M. C. Hoshovsky (eds.). 2000. Invasive Plants of California's Wildlands. University of California Press, Berkeley. 360 pp. [pp. 18-19].

CDFG (California Department of Fish and Game). 2011. Special Vascular Plants, Bryophytes, and Lichens List. July.

_____. 2010. Natural Communities List. September. http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf. Accessed 6 September 2011.

_____. 2009. Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities. CDFG, Sacramento, California. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

CNDDB (California Natural Diversity Database). 2011. Rarefind Version 3.1.1. California Department of Fish and Game. Biogeographic Data Branch. Version Date September 03, 2011.

CNPS (California Native Plant Society). 2011. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento. http://www.cnps.org/inventory. Accessed Aug 2011.

DeGroot, S. J. 2008. Meet Harwood's woolly-star (*Eriastrumharwoodii*). Fremontia 36(4):15-16.

Gowen, D. 2008. New taxa following a reassessment of *Eriastrumsparsiflorum* (Polemoniaceae). Madrono 55:82-87.

Ironwood (Ironwood Consulting Inc). 2010. Biological Resources Technical Report, Desert Sunlight Solar Farm Project, BLM Case File Number CACA-48649, Riverside County, California. Prepared for Desert Sunlight Holdings, LLC. July 20.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Sacramento, CA. 156 pp.

Laudenslayer, W. F. 1988. Desert 2ash. Pages 112-13 in K. E. Mayer and W. F. Laudenslayer, eds., Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, California. 166 pp.

Laudenslayer and Boggs. 1988. Desert scrub. Pages 114-15 in K. E. Mayer and W. F. Laudenslayer, eds., Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, California. 166 pp.

Lovich, J. E., and D. Bainbridge. 1999. Anthropogenic Degradation of the Southern California Desert Ecosystem and Prospects for Natural Recovery and Restoration. Environmental Management Vol. 24, No. 3, pp. 309–326.

Morefield, J. D. 2006. *Stylocline*. Pages 450-453 *in* Flora of North America Editorial Committee (eds.), Flora of North America vol. 19. Oxford University Press, New York.

Munz , P. A. 1974. A Flora of Southern California. University of California Press, Berkeley. 1086 pp.

Phillips, S. J., and P. W. Comus. 2000. A Natural History of the Sonoran Desert. Arizona-Sonora Desert Museum Press, Tucson, Arizona. 628 pp.

Roberts, F. M., S. D. White, A. C. Sanders, D. E. Bramlet, and S. Boyd. 2004. Vascular plants of western Riverside County, California: An annotated checklist. F. M. Roberts Publications, San Luis Rey, California.

Sawyer, J. O. Jr., T. Keeler-Wolf, and J. Evans. 2009. Manual of California Vegetation, 2nd ed. Sacramento: California Native Plant Society.

Schoenherr, A. A., and J. H. Burk. 2007. Colorado Desert vegetation. Pages 657-682 *in* M. G. Barbour, T. Keeler-Wolf and A. A. Schoenherr, eds., Terrestrial Vegetation of California, 3rd ed. University of California Press, Berkeley, California. 712 pp.

Shreve, F., and I. L. Wiggins. 1964. Vegetation and flora of the Sonoran Desert, vols. 1 and 2. Stanford University Press, Stanford, California.

Spellenberg, R. 2002. Nyctaginaceae. Pages 376-382 in B. G. Baldwin et al., The Desert Jepson Manual: Vascular Plants of Southeastern California. University of California Press, Berkeley, California. 624 pp.

Turner, R. M., J. E. Bowers, and T. L. Burgess. 1995. Sonoran Desert Plants: An Ecological Atlas. University of Arizona Press, Tucson.

USFWS (United States Fish and Wildlife Service). 2011. Endangered and threatened wildlife and plants; designation of critical habitat for *Astragaluslentiginosus* var. *coachellae* (proposed rule). Federal Register 76: 53224-53254 (25 Aug).

_____. 2009. *Astragaluslentiginosus* var. *coachellae* (Coachella Valley milk-vetch) 5-Year Review: Summary and Evaluation. Unpublished report, USFWS Carlsbad Fish and Wildlife Office, Carlsbad, California. http://ecos.fws.gov/docs/five_year_review/doc3211.pdf.

_____. 1996. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. http://www.fws.gov/sacramento/ES/Survey-Protocols-Guidelines/Documents/Listed_plant_survey_guidelines.pdf

WRCC (Western Regional Climate Center). 2011. Western U.S. Climate Historical summaries. http://www.wrcc.dri.edu/Climsum.html. Accessed October 2011.

Zouhar, K., J. K. Smith, S. Sutherland, and M. L. Brooks. 2008. Wildland Fire in Ecosystems: Fire and Nonnative Invasive Plants. General Technical Report RMRSGTR-42 Vol. 6, USDA Forest Service Rocky Mountain Research Station, Ogden, Utah: 355 pp.

## SECTION 3.4 – BIOLOGICAL RESOURCES - WILDLIFE

Ahlborn, G. 2000. Species Account for Kit Fox (*Vulpes macrotis*). California Wildlife Habitat Relationships System, California Department of Fish and Game, California Interagency Wildlife Task Group.

Beier, P., and S. Loe. 1992. A checklist for evaluating impacts to wildlife movement corridors. Wildlife Society Bulletin 20:434-440.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. Record of Decision – Desert Sunlight Solar Farm Project and Amendment to the California Desert

Conservation Area Land Use Management Plan, Riverside County, California. Palm Springs South Coast Field Office. August.

_____. 2011b. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

_____. 2011c. Plan Amendment/Final EIS for the Genesis Solar Energy Project. Palm Springs–South Coast Field Office. May.

_____. 2010a. Plan Amendment/Final EIS for the Palen Solar Power Project. Palm Springs–South Coast Field Office. August.

_____. 2010b. Special Status Animals in California, Including BLM Designated Sensitive Species. Memorandum issued February 8.

_____. 2002. Record of Decision for Approved Northern & Eastern Colorado Desert Coordinated Management Plan, an Amendment to the California Desert Conservation Area Plan 1980. California Desert District. December.

BLM and CDFG (Bureau of Land Management and California Department of Fish and Game). 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan and Final Environmental Impact Statement. Prepared by the BLM California Desert District Office and the CDFG Inland, Desert and Eastern Sierra Region. July.

Bolster, B. C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft Final Report prepared by P. V. Brylski, P. W. Collins, E. D. Pierson, W. E. Rainey and T. E. Kucera. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No.FG3146WM.

CBOC (California Burrowing Owl Consortium). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Alviso, CA. 13 pp.

CDFG (California Department of Fish and Game). 2011. Special Animals List. January.

_____. 2012. Staff report on burrowing owl mitigation. CDFG, Sacramento, California.

CNDDB (California Natural Diversity Database). 2011. Rarefind Version 3.1.1. California Department of Fish and Game. Biogeographic Data Branch. Version Date September 03, 2011.

Cypher, B. L. 2003. Foxes. Pages 511-546 in G. A. Feldhamer, B. C. Thompson, and J. A. Chapman (eds.) Wild Mammals of North America: Biology, Management, and Conservation, 2nd ed. Johns Hopkins University Press, Baltimore, MD.

Ironwood (Ironwood Consulting Inc). 2010. Biological Resources Technical Report, Desert Sunlight Solar Farm Project, BLM Case File Number CACA-48649, Riverside County, California. Prepared for Desert Sunlight Holdings, LLC. July 20.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Sacramento.

Murphy, R. W., K. H. Berry, T. Edwards, A. E. Leviton, A. Lathrop, and J. D. Riedle. 2011. The dazed and confused identity of Agassiz's land tortoise, *Gopherus agassizii* (Testudines, Testudinidae) with the description of a new species, and its consequences for conservation. ZooKeys 113: 39–71, doi: 10.3897/ZooKeys.113.1353. http://www.pensoft.net/journals/zookeys/article/1353/the-dazed-and-confused-identity-of-agassiz (accessed 27 Sep 2011).

Spencer, W. D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stebbins, R. 2003. A field guide to western reptiles and amphibians, 3rd ed. Houghton-Mifflin Co., Boston. 533 pp.

Tull, J. C., and P. R. Krausman. 2001. Use of a wildlife corridor by desert mule deer. Southwestern Naturalist 46:81-86

USFWS (United States Fish and Wildlife Service). 2011a. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Region 8, Pacific Southwest Region, Sacramento, California. May 6.

_____. 2011b. Biological Opinion on the Desert Sunlight Solar Farm Project, Riverside County, California (CACA 48649). Carlsbad Fish and Wildlife Office, Carlsbad, California. July.

_____. 2010a. Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). 2010 Field Season.

_____. 2010b. Endangered and threatened wildlife and plants; review of native species that are candidates or proposed for listing as endangered or threatened; annual notice of findings on resubmitted petitions; annual description of progress on listing actions; proposed rule. Federal Register 75:69222-69294. (10 Nov).

Western et al. (Western Area Power Administration, California Energy Commission, and Bureau of Land Management). 2010. Draft Environmental Impact Statement/Staff Assessment for the Solar Reserve LLC Rice Solar Energy Project, Riverside County, California (DOE/EIS-0439). October.

## SECTION 3.5 – CLIMATE CHANGE

California Natural Resources Agency. 2009. California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf

CARB (California Air Resources Board). 2007. California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit: Staff Report. http://www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf. Released on November 16, 2007.

_____. 2008. Climate Change Scoping Plan: December 2008. http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm. September 2011.

_____. 2010a. 1990-2004 inventory by IPCC category and 2000-2008 inventory by IPCC category. http://arb.ca.gov/cc/inventory/data/data.htm. Accessed September 2011.

_____. 2010b. Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. http://www.arb.ca.gov/regact/2010/ghg2010/ghgisor.pdf. Accessed September 2011.

CAT (Climate Action Team). 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March 2006. http://www.climatechange.ca.gov/publications/cat/2006-04-03_FINAL_CAT_REPORT.PDF. Accessed September 2011.

CPUC (California Public Utilities Commission). 2011. Large IOU RPS Procurement Data 2003-2010. March 2006. http://www.cpuc.ca.gov/NR/rdonlyres/B5AF672B-ABB6-4B0F-8F52-AF78D4701677/0/CaliforniaRPSProcurementSummary20032010.xls. Accessed September 2011.

IPCC (Intergovernmental Panel on Climate Change). 2001. Climate Change 2001 Synthesis Report: Summary for Policymakers. http://www.ipcc.ch/pdf/climate-changes-2001/synthesis-spm/synthesis-spm-en.pdf. Accessed September 2011.

_____. 2007. Climate Change 2007: Technical Summary of the Working Group I Report. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-ts.pdf. Accessed September 2011.

McAuliffe, Joseph R. 2011. Desert Soils. http://www.desertmuseum.org/books/nhsd_desert_soils.php. Accessed September 2011.

NOAA (National Oceanic and Atmospheric Administration). 2010. State of the Climate in 2009. The preliminary globally averaged atmospheric. http://www.aoml.noaa.gov/hrd/Landsea/bams-91-7-stateoftheclimate.pdf . Accessed September 2011.

Oak Ridge National Laboratory. 1998a. An Inventory of Data for Reconstructing "Natural Steady-State" Carbon Storage in Terrestrial Ecosystems. http://www.esd.ornl.gov/projects/qen/carbon1.html. Accessed September 2011.

_____. 1998b. Terrestrial Ecosystem Responses to Global Change: A Research Strategy. ORNL/TM-1998/27. http://www.ornl.gov/~webworks/cpr/rpt/1001.pdf. Accessed September 2011.

Stone, Richard. 2008. Have Desert Researchers Discovered A Hidden Loop in the Carbon Cycle? Science 320(5882): 1409-1410.

United States Climate Change Science Program. 2007. The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle. Synthesis and Assessment Product 2.2 http://www.climatescience.gov/Library/sap/sap2-2/final-report/sap2-2-final-all.pdf. Accessed September 2011.

USEPA (United States Environmental Protection Agency). 2009. Mandatory Reporting of Greenhouse Gases: Final Rule. Federal Register 74(209): 56260-56519, October 30, 2009. http://www.epa.gov/climatechange/emissions/ghgrulemaking.html. Accessed September 2011.

_____. 2010. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009. http://www.epa.gov/climatechange/emissions/downloads11/US-GHG-Inventory-2011-Executive-Summary.pdf. Accessed September 2011.

WC (Weather Channel). 2011. Monthly Average for Twentynine Palms, CA. http://www.weather.com/weather/wxclimatology/monthly/graph/USCA1173?role=. Accessed September 2011.

Wohlfahrt, Georg, et al. 2008. Large Annual Net Ecosystem CO2 Uptake at a Mojave Desert Ecosystem. EGU 2008, April 15, 2008, Vienna.

## SECTION 3.6 – CULTURAL RESOURCES

None

## SECTION 3.7 – PALEONTOLOGICAL RESOURCES

None

## SECTION 3.8 – FIRE AND FUELS MANAGEMENT

CAL FIRE (California Department of Forestry and Fire Protection). 2006. Map: Fire Hazard Severity Zoning DRAFT, 12-2006, Riverside County East. http://frap.fire.ca.gov/projects/hazard/fhz.html. Accessed October 18, 2011.

_____. 2010. Map: Fire Perimeters. http://frap.cdf.ca.gov/projects/fire_data/fire_perimeters/. Accessed October 18, 2011.

NERC (North American Electric Reliability Corporation). 2006. Transmission Vegetation Management Program. Standard FAC-003-1.

_____. 2011. "North American Electric Reliability Corporation Website: About NERC." http://www.nerc.com/page.php?cid=1. Accessed October 18, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

Riverside County Fire Department. 2011. "Fire Stations." http://www.rvcfire.org/opencms/facilities/FireStations/. Accessed October 18, 2011.

California Board of Forestry and Fire Protection. 2010. 2010 Strategic Fire Plan for California. http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf668.pdf. Accessed October 18, 2011.

## SECTION 3.9 – SOILS AND GEOLOGY

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April. Section 3.8.

Branum, D., S. Harmsen, E. Kalkan, M. Petersen and C. Wills. 2008. "Earthquake Shaking Potential for California: 2008." California Geological Society. http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf. Accessed October 18, 2011.

Hart, E. W. 1997. Fault-Rupture Hazard Zones in California: California Division of Mines and Geology Special Publication 42. http://cluster3.lib.berkeley.edu/EART/UCONLY/CDMG/north/sp42.pdf. Accessed October 18, 2011.

McAuliffe, Joseph R. 2011. Desert Soils. http://www.desertmuseum.org/books/nhsd_desert_soils.php. Accessed September 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

USGS (United States Geological Survey). 2011. "Quaternary Faults in Google Earth." http://earthquake.usgs.gov/hazards/qfaults/google.php. Accessed October 18, 2011.

_____. 2005. "California Geologic Map Data." http://tin.er.usgs.gov/geology/state/state.php?state=CA. Accessed October 18, 2011.

Working Group on California Earthquake Probabilities. 2008. The Uniform California Earthquake Rupture Forecast, Version 2 [UCERF 2]: U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203, 104 p.

## SECTION 3.10 – ENERGY AND MINERAL RESOURCES

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. BLM: California: What We Do: Energy: Geothermal. http://www.blm.gov/ca/st/en/prog/energy/geothermal.html. Accessed October 11, 2011.

_____. 2011b. Renewable Energy and the BLM: Wind. http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy.Par.82982.File.dat/09factsheet_Wind.pdf. Accessed October 10, 2011.

_____. 2011c. BLM Fact Sheet – Renewable Energy and the BLM: Solar. http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/solar_and_wind.Par.56734.File.dat/10factsheet_Solar_120810.pdf. Accessed October 10, 2011.

_____. 2011d. Mining Claims and Sites on Federal Lands. http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy.Par.28664.File.dat/MiningClaims.pdf. Accessed October 11, 2011.

_____. 2005. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. Volume 1, Chapter 4. http://www.windeis.anl.gov/documents/fpeis/maintext/Vol1/Vol1Ch4.pdf. Accessed October 10, 2011.

DOC (California Department of Conservation). 2001. Oil, Gas, and Geothermal Fields in California 2001. ftp://ftp.consrv.ca.gov/pub/oil/maps/Map_S-1.pdf. Accessed October 10, 2011.

_____. 2000. California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands. http://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf. Accessed October 4, 2011.

MRDS (Mineral Resources Data System). 2011. Mineral Resources Online Spatial Data: conterminous US. http://tin.er.usgs.gov/mrds/. Accessed October 10, 2011.

RCIP (Riverside County Integrated Project). 2008. Chapter 5: Multipurpose Open Space Element. Figure OS-5, Mineral Resources. http://www.tlma.co.riverside.ca.us/genplan/general_plan_2008/general_plan/Chapter_5_Multipurpose_Open_Space_Element_2008.pdf. Accessed October 4, 2011.

## SECTION 3.11 – LANDS AND REALTY

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

California Department of Conservation, Division of Land Resource Protection. 2006. Riverside County Williamson Act Lands 2007. ftp://ftp.conservation.ca.gov/pub/Dlrp/WA/Map%20and%20PDF/Riverside/RiversideWA_07_08.pdf. Accessed October 19, 2011.

CEC (California Energy Commission) and BLM (U.S. Department of the Interior, Bureau of Land Management). 2010. Staff Assessment and Draft Environmental Impact Statement, Palen Solar Power Project. March 2010.

Office of Energy Efficiency and Renewable Energy and Bureau of Land Management. 2010. Solar Energy Development Programmatic Environmental Impact Statement (PEIS). http://solareis.anl.gov/maps/alternatives/index.cfm. Accessed October 19, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

## SECTION 3.12 – NOISE AND VIBRATION

None

## SECTION 3.13 – PUBLIC HEALTH AND SAFETY

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. April. Section 3.11 Public Health and Safety and Appendix J. Phase I Environmental Site Assessment Report.

CCPUC California Public Utilities Commission). 2006. Southern California Edison's Devers–Palo Verde 500 kV No. 2 Project. Application Number A.05-04-015, Final Environmental Impact Report/Environmental Impact Statement. California SCH #2005101104. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/toc-feir.htm

Illinois Institute of Technology Research Institute. 1979. The Effects of 60 Hz Electrical and Magnetic Fields on Implanted Cardiac Pacemakers, EPRI Report EA-1174.3.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003. http://www.rctlma.org/genplan/general_plan_2008/area_plan_vol_2/Desert_Center_Area_Plan_2008.pdf. Accessed September 2011.

Riverside County Redevelopment Agency. 2009. First Amendment to the Disposition and Development Agreement, Desert Center Airport, Promissory Note and Deed of Trust Between Redevelopment Agency and Chuckwalla Valley Associates, LLC. September 24, 2009. http://www.clerkoftheboard.co.riverside.ca.us/agendas/2009/11_03_2009/04.02.pdf

United States Department of Energy. 2006. Memorandum-Need to Consider Intentionally Destructive Acts in NEPA Documents. Office of NEPA Policy and Compliance. December 1, 2006. http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-DOE-intentdestructacts.pdf

University of Rochester. 1985. Evaluations of the Effects of Electrical Fields on Implanted Cardiac Pacemakers. EPRI Report EA-3917.

WHO (World Health Organization). 2011. Typical exposure levels at home and in the environment. http://www.who.int/peh-emf/about/WhatisEMF/en/index3.html. Accessed September 2011.

## SECTION 3.14 – RECREATION

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

_____. 2001. U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). The Federal Land Policy and Management Act, as amended. Office of Public Affairs, Washington, D.C.

_____. 1980. California Desert Conservation Area Plan 1980, as amended March 1999.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

## SECTION 3.15 – SOCIAL AND ECONOMIC SETTING

Berkman, Leslie. 2011. "Riverside County: More study of solar fee ordered." June 28. Riverside Press Enterprise. http://www.pe.com/business/business-headlines/20110629-riverside-county-more-study-of-solar-fee-ordered.ece. Accessed October 19, 2011.

BEA (Bureau of Economic Analysis). 2011. CA25N Total Full-time and Part-time Employment by NAICS Industry. http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=5. Accessed October 19, 2011.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

BLM and CEC (Bureau of Land Management and California Energy Commission). 2009. Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment, Ivanpah Solar Electric Generating System, Application for Certification (07-AFC-5), San Bernardino County. October 2009.

BLS (Bureau of Labor Statistics). 2011a. Labor force data by county, not seasonally adjusted, June 2010 to July 2011(p). http://www.bls.gov/lau/#tables. Accessed September 20, 2011.

_____. 2011b. Local Area Unemployment Statistics, California. 2010 to 2011. http://www.bls.gov/lau/. Accessed September 20, 2011.

CADOF (California Department of Finance). 2011a. E-4 Population Estimates for Cities, Counties and the State, 2000–2010, with 2010 Benchmark. Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates/e-4/2001-10/view.php. Accessed September 20, 2011.

_____. 2011b. E-2 California County Population Estimates and Components of Change by Year, July 1, 2000-2010. Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/2000-10/view.php. Accessed September 20, 2011.

_____. 2011c. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2011, with 2010 Benchmark. Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Accessed September 20, 2011.

_____. 2011d. Census Data 2010 County Demographic Profiles. Sacramento, California. http://www.dof.ca.gov/research/demographic/state_census_data_center/census_2010/view.php. Accessed September 21, 2011.

_____. 2007. Population Projections by Race / Ethnicity, Gender and Age for California and Its Counties 2000–2050, Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/projections/p-3/. July 2007. Accessed Sept 28 2011.

_____. 1990. E-4 Population Estimates for California Cities and Counties, January 1, 1981 to January 1, 1990, Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates. January 1990.

California Gazetteer. 2011. Riverside County, CA, Hospitals. http://california.hometownlocator.com/features/cultural,class,hospital,scfips,06065.cfm. Accessed September 20 2011.

California Highway Patrol. 2011. CHP Border Division. http://www.chp.ca.gov/depts_divs_offs/601.html. Accessed September 20, 2011.

Education Data Partnership. 2011. County Reports, Riverside 2009-2010. Sacramento, California, December 2011. http://www.ed-data.k12.ca.us/App_Resx/EdDataClassic/fsTwoPanel.aspx?#!bottom=/_layouts/EdDataClassic/profile.asp?Tab=0&level=05&reportnumber=16. Accessed Septermber 20, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

Riverside County Board of Supervisors. 2011. "Submittal to the Board of Supervisors, County of Riverside, State of California: Board Policy B-29 Pertaining to Solar Power Plants." http://rivcocob.com/agenda/2011/09_27_11/03.02.pdf. Accessed October 19, 2011.

Riverside County Fire Department. 2011. Fire Stations. http://www.rvcfire.org/opencms/facilities/FireStations/. Accessed September 20, 2011.

Riverside County Sheriff's Department. 2011. Sheriff's Stations and Contract Cities. http://www.riversidesheriff.org. Accessed September 20, 2011.

US Census Bureau. 2011. Poverty Thresholds for 2010 by Size of Family and Number of Related Children Under 18 Years. http://www.census.gov/hhes/www/cpstables/032011/pov/new35_000.htm. Accessed September 21, 2011. Last modified September 13, 2011.

_____. 2010a. Poverty Thresholds 1999. http://www.census.gov/hhes/www/poverty/data/threshld/thresh99.html. Accessed September 21, 2011. Last Modified September 16, 2010.

_____. 2010b. Small Area Income and Poverty Estimates – Counties in California: 2009. Final Release Date: December 2010. http://www.census.gov/did/www/saipe/data/statecounty/data/2009.html. Accessed September 21, 2011.

## SECTION 3.16 – ENVIRONMENTAL JUSTICE

CADOF (California Department of Finance). 2011a. E-2 California County Population Estimates and Components of Change by Year, July 1, 2000-2010. Sacramento, California. http://

www.dof.ca.gov/research/demographic/reports/estimates/e-2/2000-10/view.php. Accessed September 20, 2011

_____. 2011b. E-4 Population Estimates for Cities, Counties and the State, 2000–2010, with 2010 Benchmark. Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates/e-4/2001-10/view.php. Accessed September 20, 2011.

_____. 2011c. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2011, with 2010 Benchmark. Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Accessed September 20, 2011.

_____. 2011d. Census Data 2010 County Demographic Profiles. Sacramento, California. http://www.dof.ca.gov/research/demographic/state_census_data_center/census_2010/view.php. Accessed September 21, 2011.

_____. 2007b. Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity, Sacramento, California. http://www.dof.ca.gov/research/demographic/ reports/estimates. July 2007.

_____. 1990. E-4 Population Estimates for California Cities and Counties, January 1, 1981 to January 1, 1990, Sacramento, California. http://www.dof.ca.gov/research/demographic/reports/estimates. January 1990.

BLS (Bureau of Labor Statistics). 2011a. Labor force data by county, not seasonally adjusted, June 2010 to July 2011(p). http://www.bls.gov/lau/#tables. Accessed September 20, 2011

_____. 2011c. Local Area Unemployment Statistics, California. 2010 to 2011. http://www.bls.gov/lau/. Accessed September 20, 2011.

Education Data Partnership. 2011. County Reports, Riverside 2009-2010. Sacramento, California, December 2011. http://www.ed-data.k12.ca.us/App_Resx/EdDataClassic/fsTwoPanel.aspx?#!bottom=/_layouts/EdDataClassic/profile.asp?Tab=0&level=05&reportnumber=16. Accessed Septermber 20, 2011.

California Gazetteer. 2011. Riverside County, CA, Hospitals. http://california.hometownlocator.com/features/cultural,class,hospital,scfips,06065.cfm. Accessed September 20 2011.

Riverside County Fire Department. 2011. Fire Stations. http://www.rvcfire.org/opencms/facilities/FireStations/. Accessed September 20, 2011.

Riverside County Sheriff's Department. 2011. Sheriff's Stations and Contract Cities. http://www.riversidesheriff.org. Accessed September 20, 2011.

California Highway Patrol. 2011. CHP Border Division. http://www.chp.ca.gov/depts_divs_offs/601.html. Accessed September 20, 2011.

U.S. Census Bureau. 2011. Poverty Thresholds for 2010 by Size of Family and Number of Related Children Under 18 Years. http://www.census.gov/hhes/www/cpstables/032011/pov/new35_000.htm. Accessed September 21, 2011. Last modified September 13, 2011.

_____. 2010a. Poverty Thresholds 1999. http://www.census.gov/hhes/www/poverty/data/threshld/thresh99.html. Accessed September 21, 2011. Last modified September 16, 2010.

_____. 2010b. Small Area Income and Poverty Estimates – Counties in California: 2009. Final Release Date: December 2010. http://www.census.gov/did/www/saipe/data/statecounty/data/2009.html. Accessed September 21, 2011.

## SECTION 3.17 – SPECIAL DESIGNATIONS

BLM (U.S. Department of the Interior, Bureau of Land Management). 1986. Alligator Rock Area of Critical Environmental Concern Final Management Plan and Environmental Assessment. September 1986.

_____. 1980. California Desert Conservation Area Plan 1980, as amended March 1999.

_____. 2011a. Plan Amendment/Final EIS for the Palen Solar Power Project, Appendix I. May.

BLM and CDFG (U.S. Department of the Interior, Bureau of Land Management, and California Department of Fish and Game. 2002. Northern and Eastern Colorado (NECO) Desert Coordinated Management Plan and Final Environmental Impact Statement. BLM, California Desert District and CDFG, Inland, Deserts, and Eastern Sierra Region.

CEC (California Energy Commission). 2010. CEC Staff Data Requests 181-253, Palen Solar Power Project (09-AFC-7), Technical Area: Soil and Water Resources (AFC Sections 5.12 and 5.17). Response Date: January 2010.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

## SECTION 3.18 – TRANSPORTATION AND PUBLIC ACCESS

AirNav, LLC. 2010. Federal Aviation Administration Information. http://www.airnav.com/airports/us/CA. Accessed September 2011.

BLM (U.S. Department of the Interior, Bureau of Land Management). 1980. California Desert Conservation Area Plan. 1980, as amended March 1999. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/cdcaplan.Par.15259.File.dat/CA_Desert_.pdf. Accessed September 2011

_____. 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. Section 3.15 Transportation and Appendix I. Traffic Study. April. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed September 2011.

BLM and USFS (Bureau of Land Management and United States Forest Service). 2011. National Integrated Land System, Geocommunicator Internet mapping application. http://www.geocommunicator.gov/GeoComm/index.shtm. Accessed February 8, 2010.

Caltrans (California Department of Transportation). 2010. 2010 Annual Average Daily Traffic, (2010 ADDT). http://traffic-counts.dot.ca.gov/2010all/2010AADT.xlsx. Accessed September 2011

Eagle Crest Energy Company. 2008. Eagle Mountain Pumped Storage Project Draft License Application, Exhibit E, Volume 1, Public Information. June 2008. http://www.eaglecrestenergy.com/pdfs/Exhibit_E_080616.pdf. Accessed September 2011.

Google Earth 2011. Google Earth Aerial Photographs. Accessed September 2011

State of California. 2000. California Military Land Use Compatibility Analyst Report. http://sample1.projects.atlas.ca.gov/Calmap8/index.html.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003. http://www.rctlma.org/genplan/general_plan_2008/area_plan_vol_2/Desert_Center_Area_Plan_2008.pdf. Accessed September 2011

Riverside County Planning Department. 2009. County of Riverside Planning Department Staff Report, Plot Plan No. 23577, Applicant: Chuckwalla Valley Associates, Inc. September 2009. http://www.rctlma.org/planning/content/hearings/dh/dh2009/agendas/idh_082009/sr_4.1.pdf. Accessed September 2011

RCTLMA (County of Riverside Transportation and Land Management Agency). 2003. General Plan Final Program Environmental Impact Report, Volume 1. Riverside County. http://www.rctlma.org/genplan/content/eir/volume1.html#4.16. Accessed October 2011.

TRB (Transportation Research Board). 2000. Highway Capacity Manual, Washington, D.C. December 2000.

## SECTION 3.19 – VISUAL RESOURCES

None

## SECTION 3.20 – WATER RESOURCES

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. Plan Amendment/Final EIS for the Palen Solar Power Project, Volume 1 of 2, Chapter 3: Affected Environment. May. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/palmsprings/Palen_Solar_Power_Project.Par.76983.File.dat/Vol1_Palen%20PA-FEIS_ch3.pdf. Accessed October 4, 2011.

_____. 2011b. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April. Volume 1: Executive Summary and Chapters 1 through 3.

_____. 2010. Plan Amendment / Final EIS for the Genesis Solar Energy Project, Volume 1 of 3. August. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/palmsprings/genesis.Par.93917.File.dat/Vol1_Genesis%20PA-FEIS_0cover-ch1-ch2-Intro-PropAction.pdf. Accessed October 19, 2011.

_____. 2001. California Water Rights Fact Sheet. August 15. http://www.blm.gov/nstc/WaterLaws/pdf/California.pdf. Accessed October 19, 2011.

Buddemeier, R. W., and Schloss, J. A. 2000. Groundwater Storage and Flow. November 21. http://www.kgs.ku.edu/HighPlains/atlas/apgengw.htm. Accessed October 4, 2011.

CDPH (California Department of Public Health). 2007. Drinking Water Source Assessment and Protection (DWSAP) Program. http://www.cdph.ca.gov/certlic/drinkingwater/Pages/DWSAP.aspx. Accessed December 8, 2011.

CEC (California Energy Commission). 2009. Application for Certification for the Genesis Solar Energy Project. November 30. http://www.energy.ca.gov/sitingcases/genesis_solar/documents/applicant/2009-12-15_Data_Responses_to_Set_1A_TN-54453.pdf. Accessed October 22, 2011.

Colorado River Basin RWQCB (Regional Water Quality Control Board). 2006a. CWA Section 303(d) List of Water Quality Limited Segments. USEPA Approval Date: June 28, 2007. http://www.swrcb.ca.gov/rwqcb7/water_issues/programs/tmdl/docs/303d/usepa_final_r7_2006_303dlist.pdf. Accessed September 30, 2011.

_____. 2006b. Water Quality Control Plan, Colorado River Basin – Region 7. Includes Amendments Adopted by the Regional Board through June. http://www.swrcb.ca.gov/rwqcb7/publications_forms/publications/docs/basinplan_2006.pdf. Accessed October 15, 2011.

CRBC (Colorado River Board of California: The Resources Agency, State of California). 2003. Lower Colorado Water Supply Project: Questions & Answers. http://www.crb.ca.gov/documents.html. Accessed October 7, 2011.

_____. 2000. California's Colorado River Water Use Plan, DRAFT. May 11. http://www.crb.ca.gov/Calif_Plan%20May%2011%20Draft.pdf. Accessed October 7, 2011.

DWR (California Department of Water Resources). 2011a. Groundwater Glossary. http://www.water.ca.gov/groundwater/groundwater_glossary.cfm. Accessed September 22, 2011.

_____. 2011b. Awareness Floodplain Mapping. Floodplain Boundaries – Riverside County. Desert Center Quadrangle. http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/riverside/desert_center.cfm. Accessed December 13, 2011.

_____. 2004a. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Chuckwalla Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-5.pdf. Accessed September 22, 2011.

_____. 2004b. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Pinto Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-6.pdf. Accessed October 7, 2011.

_____. 2004c. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Cadiz Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-6.pdf. Accessed October 7, 2011.

_____. 2004d. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Orocopia Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-31.pdf. Accessed October 7, 2011.

_____. 2004e. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Palo Verde Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-39.pdf. Accessed October 7, 2011.

_____. 2003. Guidebook for Implementation of Senate Bioll 610 and Senate Bill 221. October 8. http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf. Accessed October 4, 2011.

Eagle Crest Energy. 2008. Eagle Mountain Pumped Storage Project. Pre-Application Document. Volume 1, Public Information. FERC Project No. 12509. January. http://www.eaglemountainenergy.us/pdfs/PAD_080105.pdf. Accessed December 8, 2011.

FEMA (Federal Emergency Management Agency). 2011. Definitions of FEMA Flood Zone Designations: Undetermined Risk Areas. http://www.msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%20Flood%20Zone%20Designations. Accessed September 30, 2011.

_____. 2008. Flood Insurance Rate Map 06065CIND2A, Map Index Sheet 2 of 2: Riverside County and Incorporated Areas, California. Effective Date: August 28. http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1&userType=G. Accessed September 30, 2011.

JR Associates. 2009. Geophysical Investigation at the Ford Dry Lake Site Near Blythe in Riverside County, California. August 26. http://www.energy.ca.gov/sitingcases/genesis_solar/documents/applicant/afc/volume_2/Appendix%20D.%20Water%20Resources/D.5%20Geophysical%20Invest/Appendix%20D.5.PDF. Accessed October 4, 2011.

Ludwig, Noel. 2011. Desert Harvest Groundwater Comments. Written communication sent via electronic mail by Noel Ludwig, Hydrologist, California Desert District of the U.S. Bureau of Land Management, to Marisa Mitchell, Project Manager, Aspen Environmental Group. December 6.

NPS (National Park Service, Joshua Tree National Park), 2010. Standard Review Form: Draft Environmental Impact Report, Eagle Crest Energy Pumped Storage. October 4.

PHB & Associates, Inc. 2009. Preliminary Flood Plan & Hydrology Analysis for Eagle Mountain Area, California. January 22.

RCFCWCD (Riverside County Flood Control and Water Conservation District). 2011. Floodplain Management: District Floodplain Management. http://rcflood.org/FloodPlain.aspx. Accessed December 13, 2011.

USEPA (U.S. Environmental Protection Agency). 2010. Clean Water Action Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes. http://water.epa.gov/lawsregs/guidance/cwa/upload/CWA_401_Handbook_2010_Interim.pdf. Accessed September 27, 2011.

USGS (U.S. Geological Survey). 2008. Scientific Investigations Report 2008-5113, Version 1.1: Update of the Accounting Surface Along the Lower Colorado River. Prepared in cooperation with the Bureau of Reclamation. Revised 2009. http://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf. Accessed September 27, 2011.

_____. 2007. Geological Survey Water-Supply Paper 1475-0: Hydrologic and Geologic Reconnaissance of Pinto Basin Joshua Tree National Monument, Riverside County, California. Water Resources: Groundwater. http://www.nps.gov/history/history/online_books/geology/publications/wsp/1475-O/sec2.htm. Accessed October 7, 2011.

_____. 2004. Evaluation of the Geohydrologic Framework, Recharge Estimates, and Ground-Water Flow of the Joshua Tree Area, San Bernardino County, California. Scientific Investigations Report 2004-5267. http://pubs.usgs.gov/sir/2004/5267/sir2004-5267.pdf. Accessed November 28, 2011.

White, Scott. 2011. Email communication from Scott White of Aspen Environmental Group to Aubrey Mescher, Marisa Mitchell, Jennifer Lancaster, and Justin Wood of Aspen Environmental Group. October 21.

## SECTION 3.21 – SOLID AND HAZARDOUS WASTES

RCWMD (Riverside County Waste Management Department). 2011a. Managing Waste for a Better Tomorrow. http://www.rivcowm.org/opencms/. Accessed September 29, 2011.

_____. 2011b. Waste Fact Sheet. April. http://www.rivcowm.org/opencms/landfill_info/pdf/FactSheets/70759-HazardousWaste-Business.pdf. Accessed September 29, 2011.

## SECTION 3.22 – CDCA PLAN CONFORMANCE

None

## SECTION 4.1 – ENVIRONMENTAL CONSEQUENCES INTRODUCTION AND OVERVIEW

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. Desert Sunlight Solar Farm Project: California Desert Conservation Plan Amendment and Final Environmental Impact Statement DOI Control No. FES 10-39. April. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed September 2011.

_____. 2011b. Notice of Intent to Prepare a Joint Environmental Impact Statement and Environmental Impact Report for the Proposed McCoy Solar Energy Project and Possible Land Use Plan Amendment, Riverside County, CA. Federal Register Vol. 76, No 167. Monday August 29.

_____. 2011c. BLM First-in-Line Pending Solar Applications: California. Updated August. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy/solar.Par.84447.File.dat/BLM%20Solar%20Apps%20and%20Auths.pdf. Accessed September 2011.

CEC (California Energy Commission). 2011a. 2011 Renewable Energy Action Team (REAT) Generation Tracking Projects, California Desert Protection Act of 2011, & Draft Proposed Competitive Renewable Energy Zones: Version 8/24/2011. http://www.energy.ca.gov/33by2020/documents/renewable_projects/REAT_2011_Renewable_Projects_2011-08-24.pdf. Accessed September 2011.

_____. 2011b. Renewable Energy Action Team - Generation Tracking for Renewable Projects: Revised 6/20/2011. http://www.energy.ca.gov/33by2020/documents/renewable_projects/Tracking_Report_for_Renewable_Projects.pdf. Accessed September 2011.

CPUC (California Public Utilities Commission). 2011. California's Renewables Portfolio Standard (RPS) List of Facilities. October.

Riverside County. 2010. Land Development Committee Meeting & Comment Agenda Riverside County Planning Department. http://www.rctlma.org/planning/content/devproc/ldc/ldc2010/indioldc_meeting_102110.pdf. Accessed October 2011.

## SECTION 4.2 – AIR RESOURCES

SCAQMD (South Coast Air Quality Management District). 2011a. SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed October 2011.

_____. 2011b. SCAQMD Localized Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed October 2011.

_____. 2011c. SCAQMD AQMD Rule Book. http://aqmd.gov/rules/index.html. Accessed October 2011.

_____. 2007. 2007 Air Quality Management Plan. http://aqmd.gov/aqmp/07aqmp/index.html. Accessed October 2011.

_____. 2003. 2003 Air Quality Management Plan. http://aqmd.gov/aqmp/AQMD03AQMP.htm. Accessed October 2011.

## SECTION 4.3 – BIOLOGICAL RESOURCES – VEGETATION

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011a. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

_____. 2011b. Plan Amendment/Final EIS for the Palen Solar Energy Project. Palm Springs – South Coast Field Office. May.

_____. 2007. Record of Decision – Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. U.S. Department of the Interior. September 20. http://www.blm.gov/wo/st/en/prog/more/veg_eis.html. Accessed October 31, 2011.

BLM and CDFG (Bureau of Land Management and California Department of Fish and Game). 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan and Final Environmental Impact Statement. Prepared by the BLM California Desert District Office and the CDFG Inland, Desert and Eastern Sierra Region. July.

Boarman, W. I. 2002. Threats to desert tortoise populations: A critical review of the literature. U.S. Geological Survey, Western Ecological Research Center, Sacramento, California.

Brooks, M. L., and B. Lair. 2005. Ecological effects of vehicular routes in a desert ecosystem. Report prepared for the United States Geological Survey, Recoverability and Vulnerability of Desert Ecosystems Program http://geography.wr.usgs.gov/mojave/rvde. March 2.

DOE and BLM (Department of Energy and the Bureau of Land Management). 2010. Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States. DES 10-59. DOE/EIS-0403. December.

DOE and BLM. 2011. Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States. DES 11-49. DOE/EIS-0403D-S. October.

Gibson, A. C., M. R. Sharifi and P. W. Rundel. 2004. Resprout characteristics of creosote bush (*Larrea tridentata*) when subjected to repeated vehicle damage. Journal of Arid Environments 57: 411-429.

Jackson, L. L., and P. W. Comus. 1999. Ecological consequences of agricultural development in a Sonoran Desert valley. Pages 215-254 in R. H. Robichaux (ed.). Ecology of Sonoran Desert Plants and Plant Communities. University of Arizona Press, Tucson.

Jennings, W. B. 1997. Habitat use and food preferences of the desert tortoise, Gopherus agassizii, in the western Mojave Desert and impacts of off-road vehicles. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – An International Conference. pp. 42-45.

Lovich, J. E., and D. Bainbridge. 1999. Anthropogenic Degradation of the Southern California Desert Ecosystem and Prospects for Natural Recovery and Restoration. Environmental Management Vol. 24, No. 3, pp. 309–326.

Newton, G. A., and V. P. Claassen. 2003. Rehabilitation of Disturbed Lands in California: A Manual for Decision-Making. California Department of Conservation, California Geological Survey. 228 p.

NISC (National Invasive Species Council). 2008. 2008-2012 National Invasive Species Management Plan. 35 pp. August 1.

Okin, G. S., B. Murray, and W. H. Schlesinger. 2001. “Degradation of sandy arid shrubland environments: observations, process modeling, and management implications.” Journal of Arid Environments. 47:123-144.

Sharifi, M. R., A. C. Gibson, and P. W. Rundel. 1997. “Surface dust impacts on gas exchange in Mojave Desert shrubs.” Journal of Applied Ecology. 34 (4): 837-846.

Western et al. (Western Area Power Administration, California Energy Commission, and Bureau of Land Management). 2010. Draft Environmental Impact Statement/Staff Assessment for the Solar Reserve LLC Rice Solar Energy Project, Riverside County, California (DOE/EIS-0439). October.

## SECTION 4.4 – BIOLOGICAL RESOURCES – WILDLIFE

APLIC (Avian Power Line Interaction Committee). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, CA. 207 pp.

Avery, M. L., P. F. Spring, and N. S. Dailey. 1978. Avian mortality at man-made structures: an annotated bibliography. U.S. Fish and Wildlife Service, Biological Services Program, National Power Plant Team. FWS/OBS-75/58. 108 pp.

Bertolero, A., D. Oro, and A. Besnard. 2007. Assessing the efficacy of reintroduction programmes by modeling adult survival: the example of Hermann’s tortoise. Animal Conservation 10:360–368.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. April.

Boarman, W. I. 2003. Managing a Subsidized Predator Population: Reducing Common Raven Predation on Desert Tortoises. *Environmental Management* V32:2 p. 205-217.

_____. 2002. Threats to desert tortoise populations: A critical review of the literature. U.S. Geological Survey, Western Ecological Research Center, Sacramento, California.

Boarman, W. I., M. A. Patten, R. J. Camp, and S. J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. Journal of Arid Environments. 67 (2006) 248-261.

CBOC (California Burrowing Owl Consortium). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Alviso, CA 13 pp.

CDFG (California Department of Fish & Game). 1995. Staff Report on Burrowing Owl Mitigation. Memorandum dated October 17, 1995.

Dooling, R. J., and A. N. Popper. The effects of highway noise on birds. Prepared for the California Department of Transportation, Division of Environmental Analysis. September 30.

DTRO (Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service). 2009. Science Advisory Committee Meeting Summary, March 13, 2009. http://www.fws.gov/nevada/desert_tortoise/documents/sac/20090313_SAC_meeting_summary.pdf. Accessed November 4, 2011.

Esque, T. C., K. E. Nussear, K. K. Drake, A. D. Walde, K. H. Berry, R. C. Averill-Murray, A. P. Woodman, W. I. Boarman, P. A. Medica, J. Mack, and J. S. Heaton. 2010. Effects of subsidized predators, resource variability, and human population density on desert tortoise populations in the Mojave Desert, USA. Endangered Species Research 12: 167-177.

Field, K. J., C. R. Tracy, P. A. Medica, R. W. Marlow, and P. S. Corn. 2007. Return to the wild: Translocation as a tool in conservation of the desert tortoise (*Gopherus agassizii*). Biological Conservation 136:232–245.

Germano, J. M., and P. J. Bishop. 2009. Suitability of amphibians and reptiles for translocation. Conservation Biology. 23(1): 7-15.

Horvath, G., G. Kriska, P. Malik, and B. Robertson. 2009. Polarized light pollution: a new kind of ecological photopollution. Front Ecol Environ. 7(6): 317-325.

Martin, T. E., and G. R. Geupel. 1993. Nest monitoring plots: methods for locating nests and monitoring success. J. Field Ornithology 64: 507-519.

McCrary, M. D., R. L. McKernan, R. W. Schreiber, W. D. Wagner and T. C. Sciarrotta. 1986. Avian Mortality at a Solar Energy Power Plant. Journal of Field Ornithology. Vol. 57, No. 2, pp. 135-141.

Nussear, K. E., T. C. Esque, R. D. Inman, Leila Gass, K. A. Thomas, C. S. A. Wallace, J. B. Blainey, D. M. Miller, and R. H. Webb. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.

Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim golden eagle technical guidance: inventory and monitoring protocols; and other recommendations in support of eagle management and permit issuance. Division of Migratory Bird management, US Fish and Wildlife Service, Arlington Virginia. 26 pp.

Rittenhouse, C. D., J. J. Millspaugh, M. W. Hubbard, and S. L. Sheriff. 2007. Movements of translocated and resident three-toed box turtles. Journal of Herpetology. 41:115–121.

USACE and CDFG (United States Army Corps of Engineers and California Department of Fish and Game). 2009. Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Joint Environmental Impact Statement and Environmental Impact Report. SCH No. 2000011025. http://www.dfg.ca.gov/regions/5/newhall/docs/.

USFWS (United States Fish and Wildlife Service). 2011a. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Region 8, Pacific Southwest Region, Sacramento, California. May 6.

_____. 2011b. Biological Opinion on the Desert Sunlight Solar Farm Project, Riverside County, California (CACA 48649). Carlsbad Fish and Wildlife Office, Carlsbad, California. July.

_____. 2010a. Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). 2010 Field Season. Unpublished Report, Ventura Fish and Wildlife Office, Ventura, California. 18 pp.

_____. 2010b. Translocation of Desert Tortoises (Mojave Population) From Project Sites: Plan Development Guidance. Unpublished Report, August 2010, Ventura Fish and Wildlife Office, Ventura, California. 11 pp.

_____. 2010c. Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities. Pacific Southwest Region. 23 pp.

_____. 2009. Desert Tortoise Field Manual. http://www.fws.gov/ventura/species_information/protocols_guidelines/

Zouhar, K., J. K. Smith, S. Sutherland, and M. L. Brooks. 2008. Wildland Fire in Ecosystems: Fire and Nonnative Invasive Plants. General Technical Report RMRSGTR-42-Vol. 6, USDA Forest Service Rocky Mountain Research Station, Ogden, Utah: 355 pp.

## SECTION 4.5 – CLIMATE CHANGE

SCAQMD (South Coast Air Quality Management District). 2008. BOARD MEETING DATE: December 5, 2008 AGENDA NO. 31 - Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. http://www.aqmd.gov/hb/2008/December/081231a.htm. Accessed October 2011.

USEPA (United States Environmental Protection Agency). 2011. How clean is the electricity I use? – Power Profiler. http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html.

Wohlfahrt, Georg, et al. 2008. Large Annual Net Ecosystem $CO_2$ Uptake at a Mojave Desert Ecosystem. EGU 2008, April 15, 2008, Vienna.

## SECTION 4.6 – CULTURAL RESOURCES

Akyuz, Linda. 2012. DRAFT – A BLM Class III Cultural Resources Inventory for the Desert Harvest Solar Farm Project and Three Gen-Tie Alternatives Desert Center Vicinity, Riverside County, California. Prepared by Chambers Group. Prepared for the Bureau of Land Management.

Bean, Lowell John, and James Toenjes. 2010. Native American Ethnographic Resources Report for the Proposed Blythe, Palen And Genesis Solar Power Projects, Riverside County, California. Prepared for California Energy Commission, Sacramento, California. Prepared under contract with Environmental Science Associates (ESA).

Bischoff, Matt C. 2000. The Desert Training Center/California-Arizona Maneuver Area, 1942-1944: Historical and Archaeological Contexts. Statistical Research, Inc., Tucson, Arizona.

Bischoff, Matt, and Scott Baxter. 2010. Documenting the Desert Training Center and California-Arizona Maneuver Area Cultural Landscape-DRAFT. Prepared by Past Forward, Inc. Prepared for the California Energy Commission.

Chandler, Evelyn, Robert Cunningham, Elizabeth Denniston, Jennifer Howard, Melanie Knypstra, and Stephen Pappas. 2010a. Class III Cultural Resources Inventory of the Desert Sunlight Solar Farm Project: Desert Center Vicinity, Riverside County, California, Final Draft. Submitted to: U.S. Department of the Interior, Bureau of Land Management Renewable Energy Coordinating Office, Palm Springs, CA. Submitted by:ECORP Consulting, Inc., Redlands, CA

Chandler, Evelyn, Robert Cunningham, Elizabeth Denniston, Cary Cotterman, William Sharp, and Roger Mason. 2010b. Cultural Resources Evaluation of 57 Resources for the Desert Sunlight Solar Farm Project Desert Center Vicinity, Riverside County, California. ECORP, Redlands

Goldberg, Susan and Dennis McDougall. 2012. DRAFT – Third Party Review of Archaeological and Built Environment Reports by Chambers Group For Desert Harvest Solar Farm Project, Desert Center Vicinity, Riverside County, California. Applied Earthworks, Hemet.

Laylander, Don and Jerry Schaefer. 2010. Draft Chuckwalla Valley Prehistoric Trails Network Cultural Landscape: Historic Context, Research Questions, and Resource Evaluation Criteria. Prepared for California Energy Commission, Sacramento, California. Prepared by ASM Affiliates, Inc., Carlsbad, California, under contract with The Aspen Environmental Group, Agoura Hills, California. With a contribution by Lowell John Bean and James Toenjes.

## SECTION 4.7 – PALEONTOLOGICAL RESOURCES

Aron, G., and J. Kelly. 2011. Confidential Paleontological Survey Report: Desert Sunlight Solar Farm Project. Prepared of First Solar, Inc., Oakland, California and ECORP Consulting, Inc., Redlands California, prepared by Paleo Solutions, Costa Mesa, California.

Roeder, M. A. Paleontological. 2011. Records Search and Potential Fossil Yield Classification, Desert Harvest Solar Project and Gen-Tie Line, Desert Center, Riverside County, California. Prepared for Bureau of Land Management, Palm Springs Field Office and enXco Development Corporation, San Ramon, California prepared by Chambers Group, Inc., Redlands, California.

_____. 2012. DRAFT – A BLM Paleontological Resources Assessment, Desert Harvest Solar Project and Gen-Tie Line, Desert Center, Riverside County, California. Prepared for Bureau of Land Management, Palm Springs Field Office and enXco Development

Corporation, San Ramon, California prepared by Chambers Group, Inc., Redlands, California.

## SECTION 4.8 – FIRE AND FUELS MANAGEMENT

None

## SECTION 4.9 – SOILS

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. Palm Springs–South Coast Field Office. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed October 22, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

## SECTION 4.10 – ENERGY AND MINERAL RESOURCES

BLM (U.S. Department of the Interior, Bureau of Land Management). 2010. Solar Energy Development Draft Programmatic Environmental Impact Statement. Chapter 5: Impacts of Solar Energy Development and Potential Mitigation Measures. http://solareis.anl.gov/documents/dpeis/Solar_DPEIS_Chapter_5.pdf. Accessed October 12, 2011.

Federal Register. 2011. Rules and Regulations. Volume 76, Number 80. Tuesday, April 26.

## SECTION 4.11 – LANDS AND REALTY

California Department of Conservation, Division of Land Resource Protection. 2006. Riverside County Williamson Act Lands 2007. ftp://ftp.conservation.ca.gov/pub/Dlrp/WA/Map%20and%20PDF/Riverside/RiversideWA_07_08.pdf. Accessed October 19, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003.

Riverside County. 2009. Riverside County Zoning Ordinance (Ordinance 348), Amended through Ordinance No. 348.4647. http://www.tlma.co.riverside.ca.us/planning/content/zoning/ordnance/ord348_toc.html#zones. Accessed October 22, 2011.

SWRCB (State Water Resources Control Board). 2010. Eagle Mountain Pumped Storage Project Draft EIR. http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/eagle_mountain_pumped_ferc13123/2_eagltmtn_deir_vol1_2.pdf. Accessed October 28, 2011.

## SECTION 4.12 – NOISE AND VIBRATION

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement for the Palm Springs – South Coast Field Office, Palm Springs, California. CACA #48649. April.

FICUN (Federal Interagency Committee on Urban Noise). 1980. Guidelines for Considering Noise in Land Use Planning and Control. Washington, DC. http://www.wyle.com/

ServicesSolutions/science/EMMA/AcousticandVibrationConsulting/Resources/DocumentLibrary/NoiseGuidance/Pages/ficun.aspx. Accessed September 26, 2011.

First Solar. 2011. "First Solar Sells 550-Megawatt Desert Sunlight Solar Farm, Among World's Largest". September 30. http://investor.firstsolar.com/releasedetail.cfm?ReleaseID=610018. Accessed October 4, 2011.

Hernandez, Kroone & Associates. 2012. Traffic Study for Desert Harvest Solar Project, Desert Center, California. Prepared for Aspen Environmental Group. January. [see Appendix H].

Riverside County. 2003. County of Riverside General Plan, Chapter 7: Noise Element. October 2003. http://www.tlma.co.riverside.ca.us/genplan/content/gp/chapter07.html. Accessed September 26, 2011.

_____. 2004. Riverside County Airport Land Use Compatibility Plan. Volume 1. Policy Document. October 14. http://www.rcaluc.org/plan_new.asp.

_____. 2007. Ordinance No. 847 (As Amended Through 847.1), An Ordinance of the County of Riverside Amending Ordinance No. 847 Regulating Noise. Amended June 19, 2007. http://www.clerkoftheboard.co.riverside.ca.us/ords/800/847.pdf. Accessed September 26, 2011.

USEPA (United States Environmental Protection Agency). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. (EPA 550/9-74-004.) U.S. Government Printing Office. Washington, DC. http://www.nonoise.org/library/levels74/levels74.htm. Accessed September 26, 2011.

## SECTION 4.13 – PUBLIC HEALTH AND SAFETY

Baker, Scott. 2011. Captain of Lake Tamarisk Fire Department. Personal communication with Amy Morris from Aspen Environmental Group. November 1, 2011.

BLM (U.S. Department of the Interior, Bureau of Land Management). 2011. Final EIS/EIR for the Desert Sunlight Solar Farm Project. Section 3.11 Public Health and Safety and Appendix J Phase I Environmental Site Assessment Report. April. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed October 2011.

First Solar. 2009. Independent Studies. http://www.firstsolar.com/en/CdTe.php. Accessed October 2011.

Fthenakis, V., and K. Zweibel. 2003. CdTe PV: Real and Perceived EHS Risks. Presented at the 2003 NCPV Meeting.

Lange, N. 1973. *Handbook of Chemistry*. McGraw Hill.

Riverside County. 2006. Riverside County Operational Area. Emergency Operations Plan. http://www.rvcfire.org/opencms/functions/oes/EmergencyManagement/PlansandPublications/RIVERSIDE_COUNTY_OPERATIONAL_AREA_EMERGENCY_OPERATIONS_PLAN_xEOPx.html. Accessed October 31, 2011.

Riverside County. 2003. County of Riverside General Plan and Desert Center Area Plan. October 2003. http://www.rctlma.org/genplan/general_plan_2008/area_plan_vol_2/Desert_Center_Area_Plan_2008.pdf. Accessed October 2011

Zayed, P., and S. Philippe. 2009. Acute Oral and Inhalation Toxicities in Rats with Cadmium Telluride. International Journal of Toxicology. Vol. 28, No. 4, 259-265. http://ijt.sagepub.com/content/28/4/259.abstract. Accessed October 2011

## SECTION 4.14 – RECREATION

BLM (U.S. Department of the Interior, Bureau of Land Management). 2010. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed October 22, 2011.

## SECTION 4.15 – SOCIAL AND ECONOMIC SETTING

BLM (U.S. Department of the Interior, Bureau of Land Management). 2010. Blythe Solar Power Project Final Environmental Impact Statement. August 2010.

_____. 2010. Desert Sunlight Solar Farm Project California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement. http://www.blm.gov/ca/st/en/fo/palmsprings/Solar_Projects/Desert_Sunlight.html. Accessed October 22, 2011.

BEA (Bureau of Economic Analysis). 2011. CA25N Total Full-time and Part-time Employment by NAICS Industry. http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=5. Accessed on Oct. 19, 2011.

CAEDD (California Employment Development Department). 2011. Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside County). http://www.calmis.ca.gov/file/lfmonth/rive$pds.pdf. Accessed Oct. 24, 2011.

Hoen, Ben, Ryan Wiser, Peter Cappers, Mark Thayer, Gautam Sethi. 2009. “The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis.” Ernest Orlando Lawrence Berkeley National Laboratory, Environmental Energy Technologies Division. http://eetd.lbl.gov/ea/ems/reports/lbnl-2829e.pdf. Accessed Oct. 24, 2011.

Kinnard, William N., Jr., Sue Ann Dickey. “A Primer on Proximity Impact Research: Residential Property.” Real Estate Issues. April.

McCann, Richard. 1999. “A Review of the Literature on Property Value Impacts from Industrial Activities.” M. Cubed (Working Paper). October.

Metz, William C., Tim Allison, David E. Clark. 1997. “Does Utility Spent Nuclear Fuel Storage Affect Local Property Values?” Radwaste. May.

Office of Energy Efficiency and Renewable Energy and Bureau of Land Management. 2010. Solar Energy Development Programmatic Environmental Impact Statement (PEIS). http://solareis.anl.gov/maps/alternatives/index.cfm. Accessed Oct. 19, 2011.

Sterzinger, George, Fredrick Beck, Damian Kostiuk. 2003. “The Effect of Wind Development on Local Property Values.” Renewable Energy Policy Project, Analytical Report. May. http://www.repp.org/articles/static/1/binaries/wind_online_final.pdf. Accessed Oct. 24, 2011.

## SECTION 4.16 – ENVIRONMENTAL JUSTICE

U.S. Census Bureau. 2010. Race, Combinations of Two Races, and Not Hispanic or Latino: 2010 in Blocks 1400 through 1499 and Block 1851 in Block Group 1 Census Tract 469. 2010 Summary File 1. http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t. Accessed October 13, 2011.

## SECTION 4.17 – SPECIAL DESIGNATIONS

None

## SECTION 4.18 – TRANSPORTATION AND PUBLIC ACCESS

None

## SECTION 4.19 – VISUAL RESOURCES

BLM (U.S. Department of the Interior, Bureau of Land Management). 1986a. *Visual Resource Inventory Manual H-8410-1.*

_____. 1986b. Visual Resource Contrast Rating Manual 8431.

_____. 1984. Visual Resource Management Manual 8400.

## SECTION 4.20 – WATER RESOURCES

AECOM. 2010. Desert Sunlight Solar Farm Project, Final Environmental Impact Statement, Appendix G: Water Resources Studies. April 9. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/palmsprings/desert_sunlight.Par.70462.File.dat/Desert%20Sunlight%20FEIS%20appendix%20G.pdf. Accessed October 18, 2011.

CEC (California Energy Commission). 2010. Genesis Solar Energy Project: Revised Staff Assessment. June 11. http://www.energy.ca.gov/2010publications/CEC-700-2010-006/CEC-700-2010-006-REV.PDF. Accessed October 22, 2011.

_____. 2009. Application for Certification for the Genesis Solar Energy Project. November 30. http://www.energy.ca.gov/sitingcases/genesis_solar/documents/applicant/2009-12-15_Data_Responses_to_Set_1A_TN-54453.pdf. Accessed October 22, 2011.

CPUC (California Public Utilities Commission). 2011. Supplemental Draft Environmental Impact Report: Devers-Palo Verde No. 2 Transmission Line Project, Colorado River Substation Expansion. Section D, Environmental Analysis. http://www.cpuc.ca.gov/environment/info/aspen/dpv2/sdeir/d_envanalysis.pdf. Accessed December 9, 2011.

CRBC (Colorado River Board of California: The Resources Agency, State of California). 2003. Lower Colorado Water Supply Project: Questions & Answers. http://www.crb.ca.gov/documents.html. Accessed October 7, 2011.

_____. 2000. California's Colorado River Water Use Plan, DRAFT. May 11. http://www.crb.ca.gov/Calif_Plan%20May%2011%20Draft.pdf. Accessed October 7, 2011.

DWR (California Department of Water Resources). 2004a. California's Groundwater Bulletin 118: Hydrologic Region Colorado River, Chuckwalla Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-5.pdf. Accessed November 9, 2011.

enXco. 2011a. Desert Harvest Solar Plan of Development. October 18.

PHB & Associates, Inc. 2009. Preliminary Flood Plan & Hydrology Analysis for Eagle Mountain Area, California. January 22.

UBC (Uniform Building Code). 1997. Volume 2, Chapter 16: Structural Design Requirements.

WorleyParsons. 2009. Technical Memorandum – Groundwater Resources Cumulative Impact Analysis for Genesis Solar Power Project, Riverside County, CA. December 31. http://www.energy.ca.gov/sitingcases/genesis_solar/documents/applicant/2009-12-31_Cumulative_Impact_Analysis_TN-54673.pdf. Accessed October 4, 2011.

## SECTION 4.21 – SOLID AND HAZARDOUS WASTES

RCWMD (Riverside County Waste Management Department). 2011. Managing Waste for a Better Tomorrow. http://www.rivcowm.org/opencms/. Accessed September 29, 2011.

## SECTION 4.22 – IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

None

## SECTION 4.23 – SHORT-TERM VERSUS LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

None

## SECTION 4.24 – SUMMARY OF UNAVOIDABLE IMPACTS

None

# CHAPTER 8

## Glossary and List of Acronyms

# CHAPTER 8 – GLOSSARY AND LIST OF ACRONYMS

## GLOSSARY

**Air Basin.** A regional area defined for state air quality management purposes based on considerations that include topographic features that influence meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs.

**Air Quality Control Region.** A regional area defined for federal air quality management purposes based on considerations that include topographic features that influence meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs.

**Alluvial Fan.** Fan shaped landform consisting of water deposited material.

**Ambient Air Quality Standards.** A combination of air pollutant concentrations, exposure durations, and exposure frequencies that are established as thresholds above which adverse impacts to public health and welfare may be expected. Ambient air quality standards are set on a national level by the U.S. Environmental Protection Agency. Ambient air quality standards are set on a state level by public health or environmental protection agencies as authorized by state law.

**Ambient Air.** Outdoor air in locations accessible to the general public.

**Area of Critical Concern (ACEC).** An area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

**Attainment Area.** An area that has air quality as good as or better than a national or state ambient air quality standard. A single geographic area may be an attainment area for one pollutant and a non-attainment area for others.

**A-Weighted Decibel (dBA).** A frequency-weighted decibel scale that approximates the relative sensitivity of human hearing to different frequency bands of audible sound.

**Cancer.** A class of diseases characterized by uncontrolled growth of somatic cells. Cancers are typically caused by one of three mechanisms: chemically induced mutations or other changes to cellular DNA; radiation induced damage to cellular chromosomes; or viral infections that introduce new DNA into cells.

**Carbon Monoxide (CO).** A colorless, odorless gas that is toxic because it reduces the oxygen-carrying capacity of the blood.

**Carcinogen.** A chemical substance or type of radiation that can cause cancer in living organisms.

**Clean Water Act (CWA).** Provides requirements for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

**Climate.** A statistical description of daily, seasonal, or annual weather conditions based on recent or long-term weather data. Climate descriptions typically emphasize average, maximum, and minimum conditions for temperature, precipitation, humidity, wind, cloud cover, and sunlight intensity patterns; statistics on the frequency and intensity of tornado, hurricane, or other severe storm events may also be included.

**Community Noise Equivalent Level (CNEL).** A 24-hour average noise level rating with a 5 dB penalty factor applied to evening noise levels and a 10 dB penalty factor applied to nighttime noise levels. The CNEL value is very similar to the Day-Night Average Sound Level (Ldn) value, but includes an additional weighting factor for noise during evening hours.

**Criteria Pollutant.** An air pollutant for which there is a national ambient air quality standard (carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, inhalable particulate matter, fine particulate matter, or airborne lead particles).

**Critical Habitat.** Habitat designated by the US Fish and Wildlife Service under Section 4 of the Endangered Species Act and under the following criteria: 1) specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features essential to the conservation of the species and that may require special management of protection; or 2) specific areas outside the geographical area by the species at the time it is listed but that are considered essential to the conservation of the species.

**Cultural Resources.** Locations of human activity, occupation, use, or those of importance to a group. They include expressions of human culture and history in the physical environment, such as archaeological sites, buildings, structures, objects, districts, or other places.

**C-Weighted Decibel (dBC).** A frequency-weighted decibel scale that correlates well with the physical vibration response of buildings and other structures to airborne sound.

**Day-Night Average Sound Level (Ldn).** A 24-hour average noise level rating with a 10 dB penalty factor applied to nighttime noise levels. The Ldn value is very similar to the CNEL value, but does not include any weighting factor for noise during evening hours.

**De Minimis Level.** A threshold for determining whether various regulatory requirements apply to a particular action or facility. In an air quality context, de minimis thresholds typically are based on emissions, facility size, facility activity levels, or other indicators.

**Decibel (dB).** A generic term for measurement units based on the logarithm of the ratio between a measured value and a reference value. Decibel scales are most commonly associated with acoustics (using air pressure fluctuation data); but decibel scales sometimes are used for ground-borne vibrations or various electronic signal measurements.

**Desert Pavement.** A surface covering of closely packed rock fragments of pebble or cobble size found on desert soils.

**Desert Wildlife Management Area (DWMA):** areas established in the NECO Plan to address the recovery of the desert tortoise. They are intended to be areas where viable desert tortoise populations can be maintained (Category I habitat).

**Equivalent Average Sound Pressure Level (Leq).** The decibel level of a constant noise source that would have the same total acoustical energy over the same time interval as the actual time-varying noise condition being measured or estimated. Leq values must be associated with an explicit or implicit averaging time in order to have practical meaning.

**Ethnohistoric Resources.** Areas used by Native Americans following exploration and settlement by non-Native Americans. Sites or artifacts of particular significance to modern Native Americans are often kept secret by those groups to protect the sites from disturbance, looting, overuse, or other defamations.

**Fossorial.** Adapted to digging and life underground.

**Geomorphic Setting**. Resembling the earth or its shape or configuration of the earth's surface.

**Greenhouse Gas.** A gaseous compound that absorbs infrared radiation and re-radiates a portion of that back toward the earth's surface, thus trapping heat and warming the earth's atmosphere.

**Groundwater Protection Areas and Wellhead Protection.** The overall concept behind wellhead protection is to develop a reasonable distance between point sources of pollution and public drinking water wells so that releases from point sources are unlikely to impact groundwater from the well. The California Department of Public Health established the Drinking Water Source Assessment and Protection Program, which guides local agencies in protecting surface water and groundwater that are sources of drinking water.

**Habitat.** A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

**Hazardous Air Pollutant (HAP).** Air pollutants that have been specifically designated by relevant federal or state authorities as being hazardous to human health. Most HAP compounds are designated due to concerns related to: carcinogenic, mutagenic, or teratogenic properties; severe acute toxic effects; or ionizing radiation released during radioactive decay processes.

**Hertz (Hz).** A standard unit for describing acoustical frequencies measured as the number of air pressure fluctuation cycles per second. For most people, the audible range of acoustical frequencies is from 20 Hz to 20,000 Hz.

**Invasive Species.** An exotic species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13122, 2/3/99).

**Isolate.** Non-linear, isolated archaeological features without associated artifacts.

**Maintenance Area.** An area that currently meets federal ambient air quality standards but which was previously designated as a nonattainment area. Federal agency actions occurring in a maintenance area are still subject to Clean Air Act conformity review requirements.

**Maximum Sound Pressure Level (Lmax).** The highest decibel level measured during a stated or implied monitoring period or noise event. The Lmax value recorded by a sound level meter depends on the time factor used for integration of instantaneous sound pressure level measurements. For most modern sound meters, this is 1 second when the instrument is set for the slow sampling rate and 1/8 second when the instrument is set for the fast sampling rate

**Memorandum of Understanding.** A formal document describing an agreement between parties.

**Mutagen.** A chemical substance or physical agent that causes a permanent change to the genetic material of a cell.

**National Flood Insurance Program (NFIP).** The NFIP is a federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. In support of the NFIP, FEMA identifies flood hazard areas throughout the U.S. and its territories by producing flood hazard boundary maps, flood insurance rate maps, and flood boundary and floodway maps.

**National Pollutant Discharge Elimination System (NPDES).** The NPDES permit program has been delegated in California to the State Water Resources Control Board. These sections of the CWA require that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a State certification that the discharge complies with other provisions of the Clean Water Act.

**National Register of Historic Places (NRHP).** Administered by the U.S. National Parks Department, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

**Nationwide Programmatic Agreement (PA).** A document that details the terms of a formal, legally binding agreement between one party and other state and/or federal agencies. A PA establishes a process for consultation, review, and compliance with one or more federal laws, most often with those federal laws concerning historic preservation.

**Native Americans.** Indigenous peoples of the western hemisphere.

**Nitric Oxide (NO).** A colorless toxic gas formed primarily by combustion processes that oxidize atmospheric nitrogen gas or nitrogen compounds found in the fuel. A precursor of ozone, nitrogen dioxide, numerous types of photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids. Most nitric oxide formed by combustion processes is converted into nitrogen dioxide by subsequent oxidation in the atmosphere over a period that may range from several hours to a few days.

**Nitrogen Dioxide (NO2).** A toxic reddish gas formed by oxidation of nitric oxide. Nitrogen dioxide is a strong respiratory and eye irritant. Most nitric oxide formed by combustion processes is converted into nitrogen dioxide by subsequent oxidation in the atmosphere. Nitrogen dioxide is a criteria pollutant in its own right, and is a precursor of ozone, numerous types of photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids.

**Nitrogen Oxides (NOx).** A group term meaning the combination of nitric oxide and nitrogen dioxide; other trace oxides of nitrogen may also be included in instrument-based NOx measurements. A precursor of ozone, photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids.

**Nonattainment Area.** An area that does not meet a federal or state ambient air quality standard. Federal agency actions occurring in a federal nonattainment area are subject to Clean Air Act conformity review requirements.

**Organic Compounds.** Compounds of carbon containing hydrogen and possibly other elements (such as oxygen, sulfur, or nitrogen). Major subgroups of organic compounds include hydrocarbons, alcohols, aldehydes, carboxylic acids, esters, ethers, and ketones. Organic compounds do not include crystalline or amorphous forms of elemental carbon (graphite, diamond, carbon black, etc.), the simple oxides of carbon (carbon monoxide and carbon dioxide), metallic carbides, or metallic carbonates.

**Ozone (O3).** A compound consisting of three oxygen atoms. Ozone in the lower atmosphere is a major constituent of photochemical smog that is formed primarily through chemical reactions in the atmosphere involving reactive organic compounds, nitrogen oxides, and ultraviolet light. Ozone is a toxic chemical that damages various types of plant and animal tissues and which causes chemical oxidation damage to various materials. Ozone is a respiratory irritant, and appears to increase susceptibility to respiratory infections. A natural layer of ozone in the upper atmosphere absorbs high energy ultraviolet radiation, reducing the intensity and spectrum of ultraviolet light that reaches the earth's surface.

**Particulate Matter.** Solid or liquid material having size, shape, and density characteristics that allow the material to remain suspended in the atmosphere for more than a few minutes. Particulate matter can be characterized by chemical characteristics, physical form, or aerodynamic properties. Categories based on aerodynamic properties are commonly described as being size categories, although physical size is not used to define the categories. Many components of suspended particulate matter are respiratory irritants. Some components (such as crystalline or fibrous minerals) are primarily physical irritants. Other components are chemical irritants (such as sulfates, nitrates, and various organic chemicals). Suspended particulate matter also can contain compounds (such as heavy metals and various organic compounds) that are systemic toxins or necrotic agents. Suspended particulate matter or compounds adsorbed on the surface of particles can also be carcinogenic or mutagenic chemicals.

**Peak particle velocity.** A measure of ground-borne vibrations. Physical movement distances are typically measured in thousandths of an inch, and occur over a tiny fraction of a second. But the normal convention for presenting that data is to convert it into units of inches per second.

**Percentile Sound Pressure Level (Lx).** The decibel level exceeded x percent of the time during a monitoring episode.

**Peroxyacetyl Nitrate (PAN).** A toxic organic nitrate compound formed by photochemical reactions in the atmosphere. PAN is a strong respiratory and eye irritant, and a strong necrotic agent affecting plant tissues. Also called peroxyacetic nitric anhydride. A number of similar organic nitrate compounds are formed along with PAN during photochemical smog reactions. In relatively remote rural areas PAN and related organic nitrates, together with nitric acid, are often the dominant atmospheric nitrogen compounds generated by photochemical smog reactions.

**pH (parts hydrogen).** The logarithm of the reciprocal of hydrogen-ion concentration in gram atoms per liter. Used as a measure of acidity.

**$PM_{10}$ (inhalable particulate matter).** Suspended particulate matter with aerodynamic equivalent diameters smaller than 50 micrometers, which can penetrate to the lower respiratory tract (tracheo-bronchial airways and alveoli in the lungs).

**$PM_{2.5}$ (fine particulate matter).** Suspended particulate matter with aerodynamic equivalent diameters smaller than approximately 2.0 – 2.5 micrometers, which can penetrate into the alveoli in the lungs.

**Precursor.** A compound or category of pollutant that undergoes chemical reactions in the atmosphere to produce or catalyze the production of another type of air pollutant.

**Prehistoric Resources.** Those attributed to Native American groups who occupied the region before contact with Europeans; historic resources are those associated primarily with Europeans and Americans but also include resources of Native Americans following contact.

**Protocol Agreement (Protocol).** A modified version of the NPA, adapted to the unique requirements of managing cultural resources on public lands in California, and is used as the primary management guidance for BLM offices in the state.

**Reactive Organic Compounds (ROC).** The most technically accurate term for the organic precursors of ozone and other photochemically generated pollutants. The more commonly used term is "reactive organic gases (ROG)", although many of the compounds of concern may be present in both gaseous and aerosol states.

**Reactive Organic Gases (ROG).** Organic compounds emitted into the air which have photochemical reaction rates sufficient to be considered precursors of ozone. Organic compounds that are not considered reactive in the lower atmosphere include methane, ethane, acetone, methyl acetate, carbonic acid, ammonium carbonate, methylene chloride, methyl chloroform, and numerous fully-saturated chloro-flourocarbon compounds.

**Riparian.** Situated on or pertaining to the bank of a river, stream, or other body of water. Normally describes plants of all types that grow rooted in the water table or sub-irrigation zone of streams, ponds, and springs.

**Scenic Vista.** A distant view of a broad area that is visually or aesthetically pleasing.

**Special Status Species.** Federal- or state-listed species, candidate or proposed species for listing under the provisions of the Endangered Species Act or a comparable state law, or species otherwise considered sensitive or threatened by state and federal agencies.

**State Implementation Plan (SIP).** Legally enforceable plans adopted by states and submitted to EPA for approval that identify the actions and programs to be undertaken by the State and its subdivisions to achieve and maintain national ambient air quality standards in a time frame mandated by the Clean Air Act.

**State Water Resources Control Board (SWRCB).** Created in 1967, joint authority of water allocation and water quality protection enables the State Water Board to provide comprehensive protection for California's waters. The mission of the nine Regional Boards is to develop and enforce water quality objectives and implementation plans that will best protect the State's waters, recognizing local differences in climate, topography, geology and hydrology.

**Sulfur Dioxide (SO2).** A pungent, colorless, and toxic oxide of sulfur formed primarily by the combustion of fossil fuels. It is a respiratory irritant, especially for asthmatics. A criteria pollutant in its own right, and a precursor of sulfate particles and atmospheric sulfuric acid.

**Sulfur Oxides (SOx).** A group term meaning the combination of sulfur dioxide and sulfur trioxide; treated as a precursor of sulfur dioxide, sulfate particles, and atmospheric sulfuric acid.

**Teratogen.** A chemical substance or physical agent that causes birth defects through abnormal development or malformation of a fetus.

**Total Maximum Daily Load (TMDL).** A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

**Toxic.** Poisonous. Exerting an adverse physiological effect on the normal functioning of an organism's tissues or organs through chemical or biochemical mechanisms following physical contact or absorption.

**Traditional Cultural Properties.** Areas associated with the cultural practices or beliefs of a living community. These sites are rooted in the community's history and are important in maintaining cultural identity.

**US Secretary of the Interior.** The U.S. Department of the Interior is in charge of the nation's internal affairs. The Secretary serves on the President's cabinet and appoints citizens to the National Park Foundation board.

**Vehicle Miles Traveled (VMT).** The cumulative amount of vehicle travel within a specified or implied geographical area over a given period of time.

**Visual character and quality of a site and its surroundings.** The combination of visual resources in a specific area that contribute to the overall local setting.

**Wetlands.** Permanently wet or intermittently water-covered areas, such as swamps, marshes, bogs, potholes, swales, and glades.

**Wildlife corridor.** A strip of land that aids in the movement of species between disconnected areas of their natural habitat.

## LIST OF ACRONYMS

| | |
|---|---|
| AADT | annual average daily traffic |
| AB | Assembly Bill |
| AC | alternating current |
| ACEC | Area of Critical Environmental Concern |
| AFM | Awareness Floodplain Mapping |
| AIRFA | American Indian Religious Freedom Act |
| AM | Applicant Measure |
| AMSL | above mean sea level |
| APCD | Air Pollution Control District |
| APE | Area of Potential Effects |
| AQMD | Air Quality Management District |
| AQRV | air quality related values |
| ARPA | Archaeological Resources Protection Act |
| ASTM | American Society for Testing and Materials |
| BEA | Bureau of Economic Analysis |
| BGEPA | Bald and Golden Eagle Protection Act |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| BMPs | BLM's Best Management Practices |
| BO | biological opinion |
| BOE | California Board of Equalization |
| BRTR | Biological Resources Technical Report |

| | |
|---|---|
| BSPP | Blythe Solar Power Project |
| BTU | British thermal units |
| CAA | Clean Air Act |
| CADOF | California Department of Finance |
| CAISO | California Independent System Operator |
| Cal/OSHA | California Occupational Safety and Health Administration |
| CARB | California Air Resources Board |
| CASQA | California Stormwater Quality Association |
| CASTNET | Clean Air Status and Trends Network |
| CAT | Climate Action Team |
| CBC | California Building Code |
| CCH | Consortium of California Herbaria |
| CCR | California Code of Regulations |
| CDCA | California Desert Conservation Area |
| CDD | California Desert District |
| CDFG | California Department of Fish and Game |
| CDPH | California Department of Public Health |
| CDWR | California Department of Water Resources |
| CEC | California Energy Commission |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| $CH_4$ | methane |
| CHU | Critical Habitat Unit |
| CIWMC | California Interagency Watershed Mapping Committee |
| CMMS | Computerized Maintenance Management Software |
| CMP | Congestion Management Plan |
| CNDDB | California Natural Diversity Database |
| CNEL | community noise equivalent level |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| CPUC | California Public Utilities Commission |
| CRBC | Colorado River Board of California |
| CRHR | California Register of Historical Resources |
| CRPR | California Rare Plant Rank |
| CSP | concentrated solar power |
| CTNA | Crucifixion Thorn Natural Area |
| CUP | Conditional Use Permit |
| CUPA | Certified Unified Program Agency |
| CVGB | Chuckwalla Valley Groundwater Basin |
| CVWD | Coachella Valley Water District |
| CWA | Clean Water Act |
| DC | direct current |

| | |
|---|---|
| DCAP | Desert Center Area Plan |
| DEH | Department of Environmental Health |
| DHSP | Desert Harvest Solar Project |
| DOC | determination of compliance |
| DOE | Department of Energy |
| DOI | U.S. Department of the Interior |
| DPF | diesel particulate filter |
| DPLA | Department of Planning and Local Assistance |
| DPM | diesel particulate matter |
| DPV | Devers–Palo Verde |
| DPV1 | Devers–Palo Verde No. 1 Transmission Line Project |
| DPV2 | Devers–Palo Verde No. 2 Transmission Line Project |
| DRECP | Desert Renewable Energy Conservation Plan |
| DSSF | Desert Sunlight Solar Farm |
| DTC/C-AMA | Desert Training Center/California-Arizona Maneuver Area |
| DTRO | Desert Tortoise Recovery Office |
| DTSC | Department of Toxic Substance Control |
| DWMA | Desert Wildlife Management Area |
| DWR | (California) Department of Water Resources |
| DWSAP | Drinking Water Source Assessment and Protection |
| ECMCP | Environmental and Construction Monitoring and Compliance Program |
| EERE | Energy Efficiency and Renewable Energy |
| EIR | Environmental Impact report |
| EIS | Environmental Impact Statement |
| EMF | electromagnetic fields |
| EMPS | Eagle Mountain Pumped Storage |
| EPA | Environmental Protection Agency |
| EPC | engineering, procurement, and construction |
| EPS | emission performance standards |
| ERMA | Extensive Recreation Management Areas |
| ESA | Endangered Species Act |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| FERC | Federal Energy Regulatory Commission |
| FHSZ | Fire Hazard Severity Zones |
| FICUN | Federal Interagency Committee on Urban Noise |
| FIFRA | Federal Insecticide, Fungicide, and Rodenticide Act |
| FIRM | Flood Insurance Rate Map |
| FLPMA | Federal Land Policy and Management Act |
| FMMP | Farmland Mapping and Monitoring Program |
| FP | Fully Protected |
| FPM | Floodplain Management |
| FRA | Federal Responsibility Area |
| GHG | greenhouse gas |
| GIP | Generator Interconnection Procedures |
| GIS | Geographic Information System |

| | |
|---|---|
| GO | General Order |
| GSEP | Genesis Solar Energy Project |
| HA | Hydrologic Area |
| HAP | Hazardous Air Pollutant |
| HCP | Habitat Conservation Plan |
| HMP | Habitat Management Plan |
| HR | Hydrologic Region |
| HSC | Health and Safety Code |
| HU | Hydrologic Unit |
| I-10 | Interstate 10 |
| IBC | International Building Code |
| ICC | International Code Council |
| IMPROVE | Inter-agency Monitoring of Protected Visual Environments |
| IOU | investor-owned utility |
| IPCC | Intergovernmental Panel on Climate Change |
| ISO | Insurance Service Office |
| IWMB | Integrated Waste Management Board |
| IWMP | Integrated Weed Management Plan |
| JTNP | Joshua Tree National Park |
| KOP | Key Observation Point |
| LACM | Natural History Museum of Los Angeles County |
| LOS | Level of Service |
| LR2000 | Mineral Legacy Rehost 2000 System of automated records |
| LRA | Local Responsibility Area |
| LST | Localized Significance Threshold |
| LTMM | Long-term Management and Maintenance |
| LTVA | Long Term Visitor Area |
| LU | land use |
| LULU | locally undesirable land use |
| LUST | Leaking Underground Storage Tank |
| MBTA | Migratory Bird Treaty Act |
| MDAQMD | Mojave Desert Air Quality Management District |
| MEC | munitions and explosives of concern |
| MLD | Most Likely Descendent |
| MM | mitigation measure |
| MRDS | Mineral Resources Data System |
| MRZ | mineral resource zone |
| MSDS | Material Safety Data Sheet |
| MTPs | BLM Master Title Plats |
| MUC | Multiple Use Class |
| MW | megwatt |
| MWD | Metropolitan Water District of Southern California |
| $N_2O$ | nitrous oxide |
| N-A | Natural Assets |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NAHC | Native American Heritage Commission |

| | |
|---|---|
| NCCP | Natural Community Conservation Planning |
| NCMPD | North Chuckwalla Mountain Petroglyph District |
| NECO | Northern and Eastern Colorado Desert Coordinated Management Plan |
| NEPA | National Environmental Policy Act of 1969 |
| NERC | North American Electric Reliability Corporation |
| NFIP | National Flood Insurance Program |
| NFWF | National Fish and Wildlife Foundation |
| NHPA | National Historic Preservation Act |
| $NO_2$ | nitrogen dioxide |
| NOA | Notice of Availability |
| NOAA | National Oceanic and Atmospheric Administration |
| NOI | Notice of Intent |
| NOP | Notice of Preparation |
| NPA | Nationwide Programmatic Agreement |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | National Park Service |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| $O_3$ | ozone |
| OHV | off-highway vehicle |
| OPLA | Omnibus Public Lands Management Act |
| OSHA | Occupational Safety and Health Administration |
| OWTS | on-site water treatment system |
| PAR | Property Assessment Report |
| PCE | passenger car equivalent |
| PCS | power conversion station |
| PEIS | Programmatic Environmental Impact Statement |
| PFYC | Potential Fossil Yield Classification |
| PLP | Polarized Light Pollution |
| PM10 | inhalable particulate matter |
| PM2.5 | fine particulate matter |
| POD | Plan of Development |
| PPV | peak particle velocity |
| PRC | Public Resources Code |
| PRMP | Paleontological Resource Management Plan |
| PRPA | Paleontological Resources Preservation Act |
| PSD | Prevention of Significant Deterioration |
| PSEP | Palen Solar Energy Project |
| PTNCL | Prehistoric Trails Network Cultural Landscape |
| PUP | Public Use Permit |
| PV | photovoltaic |
| PVID | Palo Verde Irrigation District |
| QS | Quaternary Sands |
| Qal | Quaternary Alluvium |
| Ql | Quaternary lake or playa sediments |
| Qc | Pleistocene nonmarine deposits |

| | |
|---|---|
| Qco | Older Pleistocene nonmarine deposits |
| QT | Quaternary-Tertiary playa deposits |
| RCRA | Resource Conservation and Recovery Act |
| RCWMD | Riverside County Waste Management Department |
| REAT | Renewable Energy Action Team |
| RES | Renewable Electricity Standard |
| RHA | Rivers and Harbors Act |
| RMP | resource management plan |
| RO | reverse osmosis |
| ROD | Record of Decision |
| ROI | Region of Influence |
| ROW | right-of-way |
| RPS | Renewable Portfolio Standard |
| RSABG | Rancho Santa Ana Botanic Garden |
| RTP | Regional Transportation Plan |
| RWQCB | Regional Water Quality Control Board |
| SAA | Streambed Alteration Agreement |
| SAC | Science Advisory Committee |
| SB | Senate Bill |
| SCAG | Southern California Association of Governments |
| SCAQMD | South Coast Air Quality Management District |
| SCE | Southern California Edison |
| SEZ | Solar Energy Zone |
| $SF_6$ | sulfur hexafluoride |
| SFR | single-family residential |
| SHPO | State Historic Preservation Office |
| SIP | State Implementation Plan |
| SLF | Sacred Lands File |
| SMARA | Surface Mining and Reclamation Act |
| SMGB | State Mining and Geology Board |
| $SO_2$ | sulfur dioxide |
| SPCC Plan | Spill Prevention, Control, and Countermeasure Plan |
| SR | State Route |
| SRA | State Responsibility Area |
| SSC | Species of Special Concern |
| SWPP | Surface Water Protection Plan |
| SWPPP | storm water pollution prevention plan |
| SWRCB | State Water Resources Control Board |
| TDS | total dissolved solids |
| TLMA | Transportation and Land Management Agency |
| TMDL | Total Maximum Daily Load |
| TRB | Transportation Research Board |
| UBC | Uniform Building Code |
| UCMP | University of California at Berkeley Museum of Paleontology |
| UFC | Uniform Fire Code |
| USACE | U.S. Army Corps of Engineers |

| | |
|---|---|
| USBR | U.S. Bureau of Reclamation |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USEPA | United States Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| UWMPs | Urban Water Management Plan |
| VFR | visual flight rules |
| VMT | vehicle miles traveled |
| VRI | Visual Resource Inventories |
| VRM | Visual Resource Management |
| VS-VC | Visual Sensitivity – Visual Change |
| WA | Wilderness Area |
| WDID | Waste Discharge Identification Number |
| WDR | Waste Discharge Requirement |
| WEAP | Worker Environmental Awareness Program |
| WHMA | Wildlife Habitat Management Area |
| WIMP | Wind Implementation Monitoring Program |
| WIU | Wilderness Inventory Unit |
| WQC | Water Quality Certifications |
| WSA | Water Supply Assessment |

# CHAPTER 9

## Index

# CHAPTER 9 – INDEX

— A —

**ACEC:** *See* Area of Critical Environmental Concern

**Alligator Rock:** 3.6-29, 3.14-2, 3.14-4, 3.19-1, 3.19-3–3.19-4, 3.19-13–3.19-15, 4.11-3, 4.14-6, 4.17-1–4.17-8, 4.17-10–4.17-14, 4.17-16–4.17-17, 4.17-30–4.17-32

**Alquist- Priolo Earthquake Fault Zoning Act:** 3.9-2–3.9-3, 3.9-5, 4.9-14

**Ambient Air Quality Standards:** 1-15, 3.2-1–3.2-4, 3.2-12, 4.2-1, 4.2-25

**Archaeological resources:** ES-7, 3.6-1–3.6-2, 3.6-4, 3.6-6, 4.6-1–4.6-2, 4.6-8, 4.6-10, 4.6-13, 4.6-16, 4.6-19, 4.6-26–4.6-32, 4.24-2, 4.24-4

**Area of Critical Environmental Concern:** 1-5–1-6, 2-47–2-48, 2-59, 2-61, 2-70, 3.4-4–3.4-5, 3.4-30, 3.6-27, 3.6-29, 3.11-2, 3.14-2, 3.14-4, 3.19-11–3.19-15, 3.19-1–3.19-4, 3.22-1, 4.6-2, 4.11-3, 4.14-2, 4.14-5–4.14-6, 4.14-9–4.14-10, 4.17-1–4.17-8, 4.17-10–4.17-14, 4.17-16–4.17-17, 4.17-30–4.17-32, 4.19-6, 4.19-11–4.19-13, 4.19-23, 4.19-27, 4.19-34

**Attainment status designation:** 3.2-2, 3.2-12

— B —

**Best Management Practices:** 1-8, 2-20, 2-22, 2-24, 3.20-2, 3.20-8, 3.22-6, 4.1-3, 4.3-8–4.3-12, 4.3-31, 4.3-33, 4.3-36, 4.3-42–4.3-46, 4.3-49–4.3-51, 4.3-53–4.3-55, 4.3-65, 4.9-3, 4.9-15, 4.13-1, 4.13-6, 4.13-8, 4.13-20, 4.17-3–4.17-5, 4.17-7, 4.17-12–4.17-13, 4.20-1–4.20-2, 4.20-4, 4.20-6, 4.20-11–4.20-13, 4.20-16, 4.20-18–4.20-19, 4.20-25–4.20-26, 4.20-30, 4.20-32–4.20-33, 4.20-42, 4.20-46–4.20-47, 4.20-50, 4.21-2–4.21-3, 4.21-11–4.21-12

**Biological resources:** 1-3, 1-10, 2-76–2-77, 3.1-1, 3.3-4, 3.3-7, 3.3-9, 3.4-6, 3.4-8–3.4-9, 3.10-3, 3.20-12, 4.3-3, 4.3-6, 4.3-8–4.3-9, 4.3-12–4.3-16, 4.3-20, 4.3-22, 4.3-24, 4.3-30, 4.3-56, 4.3-58–4.3-60, 4.3-66–4.3-67, 4.4-5, 4.4-13–4.4-14, 4.4-17, 4.4-23–4.4-24, 4.4-33, 4.4-51, 4.4-54, 4.4-63, 4.11-4, 4.11-21, 4.13-13, 4.17-5, 4.17-7–4.17-8, 4.17-14, 4.17-24, 4.24-1–4.24-2

**BMPs:** *See* Best Management Practices

— C —

**CAA:** *See* Clean Air Act

**California Desert Conservation Area:** ES-1–ES-2, ES-4, 1-1, 1-4, 1-6–1-7, 1-13, 2-3–2-4, 2-26, 2-32–2-34, 2-65, 2-77, 3.1-1, 3.3-5–3.3-6, 3.4-3–3.4-5, 3.4-26, 3.7-2, 3.9-1, 3.10-1, 3.11-1–3.11-4, 3.12-2, 3.14-1–3.14-3, 3.18-1, 3.19-1, 3.19-3, 3.19-5, 3.19-11–3.19-15, 3.19-2–3.19-3, 3.19-6, 3.22-1–3.22-8, 4.2-2–4.2-3, 4.3-4, 4.3-56, 4.3-61, 4.3-66–4.3-67, 4.3-69, 4.4-3–4.4-4, 4.4-55, 4.4-63–4.4-65, 4.5-1, 4.5-16–4.5-17, 4.6-4, 4.6-13, 4.6-21, 4.6-25, 4.6-27–4.6-28, 4.6-30, 4.7-2, 4.7-12, 4.7-19–4.7-21, 4.8-1–4.8-2, 4.8-8, 4.8-15–4.8-16, 4.9-2, 4.9-7, 4.10-1–4.10-2, 4.11-1–4.11-2, 4.11-4–4.11-8, 4.11-11–4.11-12, 4.11-15, 4.11-21, 4.11-23, 4.12-2–4.12-3, 4.12-35, 4.13-3, 4.14-1, 4.15-1, 4.15-16–4.15-17, 4.16-1–4.16-2, 4.16-7, 4.17-1–4.17-2, 4.17-7–4.17-9, 4.17-11, 4.17-15–4.17-17, 4.18-2–4.18-3, 4.18-11, 4.19-2–4.19-3, 4.19-6, 4.19-27, 4.19-37, 4.19-42–4.19-43, 4.20-2, 4.20-49, 4.21-1–4.21-2, 4.24-1, 5-1, 5-5

**California Environmental Quality Act:** ES-1–ES-2, ES-4–ES-8, 1-2, 1-5, 1-8–1-12, 1-14, 2-2, 2-26, 2-34–2-63, 2-65–2-67, 3.1-2, 3.4-2, 3.4-8, 3.6-1, 3.6-3, 3.7-1, 3.7-3–3.7-4, 3.11-2, 3.13-2, 3.15-1, 3.20-5, 3.21-2, 4.1-1, 4.1-4–4.1-5, 4.2-1, 4.2-5, 4.2-25, 4.2-27–4.2-28, 4.3-66–4.3-71, 4.4-63–4.4-66, 4.5-16–4.5-18, 4.6-25–4.6-32, 4.7-19–4.7-22, 4.8-13, 4.8-15, 4.9-13–4.9-15, 4.10-11–4.10-12, 4.10-14, 4.11-8, 4.11-19–4.11-20, 4.12-34–4.12-40, 4.13-20–4.13-21, 4.14-12–4.14-13, 4.15-15–4.15-16, 4.15-18, 4.16-13, 4.17-6, 4.17-14, 4.17-32, 4.18-21–4.18-22, 4.19-9, 4.19-11–4.19-12, 4.19-23, 4.19-25–4.19-26, 4.19-29, 4.19-32, 4.19-34–4.19-35, 4.19-39, 4.19-41–4.19-42, 4.19-45, 4.20-28, 4.20-47–4.20-51, 4.21-10–4.21-12, 4.22-1, 4.24-1–4.24-4, 5-1, 5-3, 5-6

**California Public Utilities Commission:** 2-74, 3.10-2, 3.13-8, 4.11-8, 4.15-4

**Carbon storage:** 3.5-3, 3.5-10

**CDCA:** *See* California Desert Conservation Area

**CEQA:** *See* California Environmental Quality Act
**CFR:** *See* Code of Federal Regulations
**Chuckwalla CHU:** 3.4-6, 3.4-18, 4.3-22, 4.4-2, 4.4-18, 4.4-46
**Chuckwalla DWMA:** 2-32, 2-52, 2-56, 3.4-4–3.4-6, 3.19-3–3.19-4, 4.3-22, 4.4-2, 4.4-17–4.4-18, 4.4-44, 4.4-46, 4.4-50, 4.4-62–4.4-63, 4.11-3, 4.11-9–4.11-12, 4.11-14–4.11-16, 4.11-22–4.11-23, 4.17-3–4.17-8, 4.17-11–4.17-14, 4.17-16–4.17-17
**Chuckwalla Wilderness Area:** 4.17-31
**Clean Air Act:** 1-14, 3.2-1–3.2-2, 3.2-4, 3.2-10, 3.2-13, 3.5-6
**Climate change:** 2-40, 3.1-1, 3.5-1–3.5-3, 3.5-5, 3.5-7, 3.5-9–3.5-10, 3.6-5, 4.1-4, 4.3-59, 4.3-63, 4.4-59, 4.5-1, 4.5-4–4.5-9, 4.5-11–4.5-18, 4.10-14, 4.20-22, 4.23-1, 5-2
**Code of Federal Regulations:** ES-2, ES-5, ES-8, 1-4, 1-7, 1-9, 1-13–1-14, 2-2–2-3, 2-65–2-67, 3.2-10, 3.3-1–3.3-3, 3.6-2, 3.10-1, 3.13-1–3.13-2, 3.14-3, 3.18-2, 3.20-2, 3.20-4, 3.21-1–3.21-2, 3.22-6–3.22-8, 4.1-1–4.1-3, 4.6-1–4.6-3, 4.6-7, 4.13-20, 4.20-4, 4.20-13, 4.22-1, 4.23-1, 5-1, 5-5–5-6, 5-8
**Critical Habitat Unit:** 3.4-6, 4.3-21, 4.4-2, 4.11-3
**Cultural resource:** ES-3, ES-7–ES-8, 1-3, 1-13, 1-15, 2-21, 2-40, 2-71–2-72, 2-76–2-77, 3.1-1–3.1-2, 3.6-1–3.6-7, 3.6-21, 3.6-28–3.6-30, 3.11-4, 3.14-2, 3.19-1, 3.19-6, 4.1-16, 4.6-1–4.6-3, 4.6-5–4.6-32, 4.17-1–4.17-2, 4.17-4, 4.17-6, 4.17-11–4.17-12, 4.17-14, 4.17-32, 4.23-1, 4.24-2, 4.24-4, 5-2–5-3, 5-6–5-7

— D —

**Decibel scale:** 3.12-1–3.12-3
**Desert Center Area Plan:** 3.3-6, 3.4-4–3.4-5, 3.8-4, 3.9-2–3.9-3, 3.11-1, 3.14-3, 3.15-3, 3.18-2, 3.19-3, 3.19-4, 3.20-8
**Desert dry wash woodland:** 2-20–2-21, 2-51, 3.3-23, 3.4-10, 3.4-17, 3.19-4, 4.3-3, 4.3-9, 4.3-11, 4.3-35–4.3-36, 4.3-52, 4.3-56–4.3-57
**Desert pavement:** 3.2-14, 3.3-12–3.3-13, 3.4-24, 3.6-6, 3.7-9, 3.9-8, 3.19-6, 4.9-3, 4.20-10
**Desert tortoise:** 1-16, 2-21, 2-39, 2-52, 2-68, 2-76, 3.4-2, 3.4-4–3.4-6, 3.4-8–3.4-9, 3.4-11, 3.4-17–3.4-19, 3.4-22, 3.4-26, 3.4-29–3.4-31, 3.6-15, 3.11-1, 3.19-2–3.19-5, 4.1-15, 4.3-12–4.3-14, 4.3-16–4.3-17, 4.3-21–4.3-23, 4.3-63, 4.4-1–4.4-3, 4.4-5, 4.4-7–4.4-10, 4.4-17–4.4-20, 4.4-24–4.4-31, 4.4-33–4.4-34, 4.4-37–4.4-38, 4.4-44, 4.4-46, 4.4-49, 4.4-52–4.4-55, 4.4-57, 4.4-59, 4.4-62–4.4-63, 4.11-3–4.11-4, 4.11-21, 4.17-1, 4.17-24, 5-2
**Desert Wildlife Management Areas:** 1-5–1-6, 3.4-2, 3.19-2, 3.22-7

— E —

**Electromagnetic fields:** 3.13-3, 3.13-6–3.13-10, 4.15-3, 4.15-8
**EMF:** *See* Electromagnetic fields
**Endangered Species Act:** 1-7, 1-15, 1-17, 3.3-1, 3.3-4–3.3-5, 3.3-10–3.3-11, 3.3-20, 3.4-1–3.4-3, 3.4-7, 3.4-17, 3.4-21, 3.4-23, 3.4-28, 3.11-2, 4.1-3, 4.3-13, 4.3-16, 4.3-28, 4.3-30, 4.4-8, 4.13-22, 5-8
**environmental consequences:** ES-6, 1-6, 1-9, 3.19-2, 4.1-1, 4.4-6, 4.23-1
**Environmental justice:** 2-46, 3.1-1, 3.15-4, 3.16-1, 4.15-8, 4.15-15, 4.16-1–4.16-13, 5-2–5-3
**Erosion:** ES-6, 2-17, 2-22, 2-31, 2-42, 2-55, 2-63, 3.2-13–3.2-14, 3.4-31, 3.7-3, 3.7-8, 3.8-4, 3.9-1–3.9-4, 3.9-7–3.9-8, 3.19-7, 3.20-2, 3.20-10, 4.1-6, 4.1-16, 4.1-22, 4.2-6, 4.2-17, 4.2-19–4.2-20, 4.2-22, 4.3-1, 4.3-5, 4.3-8, 4.3-18, 4.3-23, 4.4-27, 4.5-10–4.5-11, 4.5-13–4.5-14, 4.6-27, 4.9-1–4.9-4, 4.9-7–4.9-16, 4.17-21, 4.19-15, 4.20-1, 4.20-9–4.20-12, 4.20-14, 4.20-16–4.20-19, 4.20-25–4.20-26, 4.20-29, 4.20-31–4.20-32, 4.20-34–4.20-35, 4.20-37–4.20-38, 4.20-40–4.20-41, 4.20-46–4.20-48, 4.20-50–4.20-51, 4.24-1
**ESA:** *See* Endangered Species Act
**Executive Order:** ES-4, 1-4, 1-14, 1-16, 3.3-3, 3.4-1, 3.5-4, 3.6-2–3.6-3, 3.11-2, 3.16-1, 3.20-3, 4.5-17–4.5-18

— F —

**Fugitive dust:** 2-16–2-17, 2-20, 3.2-6, 3.2-9, 3.2-13–3.2-14, 3.9-8, 3.20-6, 4.2-2, 4.2-4, 4.2-6–4.2-12, 4.2-14, 4.2-16, 4.2-26–4.2-27, 4.4-11–4.4-12, 4.4-15–4.4-16, 4.4-28, 4.9-3–4.9-5, 4.9-15, 4.17-1–4.17-2, 4.17-11, 4.17-21, 4.17-29, 4.19-15, 4.20-23

— G —

**GHG:** *See* Greenhouse gases
**Glare:** 4.4-21, 4.17-3–4.17-4, 4.17-12, 4.19-3, 4.19-5–4.19-6, 4.19-17–4.19-20, 4.19-42
**Greenhouse gases:** 1-5, 2-21, 2-52, 2-67, 2-73, 3.1-1, 3.5-1–3.5-10, 4.5-1–4.5-18, 4.10-2, 4.20-23, 4.23-1
**Groundwater:** ES-8–ES-9, 1-3, 2-10–2-11, 2-16, 2-49, 2-63, 3.4-26, 3.5-10, 3.6-22, 3.6-25, 3.9-3, 3.9-6, 3.10-6, 3.20-1, 3.20-3–3.20-4, 3.20-6–3.20-8, 3.20-11, 3.20-13–3.20-24, 4.1-13, 4.1-15, 4.1-22, 4.3-8–4.3-11, 4.3-35–4.3-37, 4.3-43–4.3-45, 4.3-47, 4.3-49–4.3-51, 4.3-54–4.3-55, 4.3-57, 4.3-59, 4.3-61, 4.3-63, 4.3-66, 4.4-18, 4.4-22–4.4-23, 4.9-3, 4.9-14–4.9-15, 4.13-5, 4.13-20, 4.17-3–4.17-4, 4.17-6–4.17-7, 4.17-14, 4.17-25–4.17-26, 4.20-1, 4.20-4–4.20-8, 4.20-10, 4.20-12, 4.20-14–4.20-21, 4.20-23–4.20-36, 4.20-40–4.20-47, 4.20-49–4.20-50, 5-3

— H —

**Habitat:** ES-1, ES-6–ES-7, 1-3, 1-7, 1-15–1-16, 2-19–2-21, 2-23–2-25, 2-36, 2-38–2-39, 2-51–2-52, 2-68, 2-75–2-76, 3.3-1–3.3-2, 3.3-4–3.3-5, 3.3-7–3.3-10, 3.3-12–3.3-24, 3.4-2–3.4-31, 3.5-9, 3.9-7, 3.10-4, 3.11-1–3.11-2, 3.11-6, 3.19-1, 3.19-3–3.19-5, 3.19-4, 3.19-7, 3.20-12–3.20-13, 4.1-15, 4.1-17, 4.2-10, 4.2-15, 4.3-1, 4.3-3–4.3-10, 4.3-13, 4.3-16–4.3-18, 4.3-20–4.3-25, 4.3-27–4.3-30, 4.3-35–4.3-38, 4.3-40–4.3-44, 4.3-46–4.3-61, 4.3-63–4.3-71, 4.4-1, 4.4-3–4.4-25, 4.4-27, 4.4-30–4.4-31, 4.4-33–4.4-36, 4.4-39–4.4-47, 4.4-49–4.4-67, 4.5-4, 4.5-15, 4.6-10, 4.7-9, 4.9-11, 4.10-4, 4.11-3–4.11-5, 4.11-9–4.11-10, 4.11-12, 4.11-14–4.11-21, 4.11-23, 4.12-14, 4.13-3, 4.13-13, 4.14-3, 4.17-1–4.17-6, 4.17-8–4.17-14, 4.17-23–4.17-24, 4.18-9, 4.19-14, 4.19-21, 4.20-11, 4.21-4, 4.23-1, 4.24-1, 4.24-4, 5-2
**Hydrologic Units:** 3.20-10, 3.20-24, 4.17-25, 4.20-8

— I —

**Impact criteria:** 3.12-7, 4.19-42–4.19-50

— J —

**Joshua Tree National Park:** ES-8, 1-1, 1-6, 2-48, 3.2-4–3.2-5, 3.2-12–3.2-13, 3.3-2, 3.3-7, 3.4-1, 3.4-16, 3.4-24, 3.6-8, 3.7-4–3.7-5, 3.8-7, 3.9-7, 3.11-1, 3.11-3, 3.12-9, 3.14-1, 3.14-4–3.14-5, 3.15-7, 3.19-5, 3.19-10–3.19-12, 3.19-5–3.19-6, 3.20-18–3.20-19, 4.1-2, 4.1-12, 4.1-14, 4.2-5, 4.2-24, 4.2-26, 4.3-8, 4.4-13, 4.12-1, 4.12-6–4.12-7, 4.14-2, 4.14-5–4.14-6, 4.17-11, 4.17-16–4.17-30, 4.19-6, 4.19-8, 4.19-19–4.19-20, 4.19-27, 4.19-44, 4.19-46, 5-2–5-4, 5-7

— L —

**Level of service:** 2-47, 2-61, 3.18-1–3.18-2, 3.18-5–3.18-6, 4.1-20, 4.18-1–4.18-2, 4.18-4–4.18-8, 4.18-12–4.18-14, 4.18-19–4.18-23, 4.20-22
**LOS:** *See* Level of service

— M —

**Magnetic field:** 3.13-6–3.13-10
**Metropolitan Water District of Southern California:** ES-2, ES-9, 1-1–1-2, 2-26, 2-33–2-35, 2-60, 3.6-25, 3.6-30, 3.11-3, 3.11-7, 3.15-8, 3.18-4, 3.20-15–3.20-16, 4.1-6, 4.1-13, 4.6-19, 4.7-16, 4.11-8, 4.11-11–4.11-12, 4.11-14–4.11-15, 4.18-17, 4.20-21, 4.20-23, 5-8
**Mineral resources:** 1-6, 1-12, 2-42, 2-55, 3.6-22, 3.9-1, 3.10-1–3.10-6, 3.11-4, 3.12-6, 4.1-17, 4.10-1–4.10-14, 4.14-5, 4.24-2, 4.24-4
**MWD:** *See* Metropolitan Water District of Southern California

— N —

**National Environmental Policy Act:** ES-1–ES-5, 1-1–1-2, 1-7–1-9, 1-11, 1-14, 2-1–2-3, 2-25–2-26, 2-36, 2-64–2-67, 2-69–2-70, 2-74, 3.1-2, 3.3-3–3.3-4, 3.3-11, 3.6-1, 3.6-3, 3.11-2, 3.15-1, 3.16-1, 3.19-2, 3.22-1, 3.22-6, 3.22-8, 4.1-1–4.1-2, 4.1-4–4.1-5, 4.2-2, 4.3-3, 4.3-41, 4.3-66–4.3-67, 4.4-2, 4.4-42, 4.4-63–4.4-64, 4.5-1, 4.6-2–4.6-5, 4.6-25–4.6-28, 4.7-19–4.7-20, 4.8-1, 4.8-13, 4.8-15, 4.9-1, 4.10-11–4.10-12, 4.11-1–4.11-2, 4.11-8, 4.11-12, 4.11-15, 4.11-21, 4.11-23, 4.12-2, 4.12-34, 4.13-1, 4.16-13, 4.17-1, 4.17-6, 4.17-10, 4.17-14, 4.18-2, 4.18-21, 4.19-39, 4.19-41, 4.20-28, 4.20-47, 4.21-1, 4.21-10–4.21-11, 4.22-1, 4.23-1, 4.24-1, 5-1, 5-6, 5-8
**National Historic Preservation Act:** ES-3, 1-7, 1-15, 1-17, 3.6-1–3.6-2, 4.1-3, 4.6-1, 4.6-3, 4.17-1, 5-7
**National Marine Fisheries Service:** 3.3-1, 3.4-8
**National Pollutant Discharge Elimination System:** 2-22, 3.20-1–3.20-2, 4.9-2, 4.20-3
**NECO Plan:** *See* Northern and Eastern Colorado Desert Coordinated Management Plan
**NEPA:** *See* National Environmental Policy Act
**NMFS:** *See* National Marine Fisheries Service
**No Action Alternative:** ES-5, 1-2, 1-9, 1-11, 2-1, 2-3, 2-25, 2-65–2-67, 4.3-41, 4.4-42, 4.8-8, 4.8-14, 4.8-16, 4.9-7, 4.10-2, 4.15-17, 4.16-6, 4.17-10, 4.18-1, 4.18-11
**Noise ordinance:** 2-22, 3.12-4, 3.12-6–3.12-7, 4.12-2, 4.12-5, 4.12-14–4.12-17, 4.12-19, 4.12-21, 4.12-25–4.12-26, 4.12-28–4.12-29, 4.12-32, 4.12-37, 4.12-40
**Northern and Eastern Colorado Desert Coordinated Management Plan:** ES-6–ES-7, 3.3-6–3.3-7, 3.3-10–3.3-11, 3.3-13, 3.3-16–3.3-20, 3.3-23, 3.4-3–3.4-6, 3.4-8, 3.4-10–3.4-17, 3.11-1, 3.11-3–3.11-4, 3.14-2–3.14-3, 3.18-1, 3.19-2–3.19-4, 4.1-15, 4.3-6, 4.3-56–4.3-57, 4.3-59–4.3-65, 4.4-1, 4.4-54–4.4-56, 4.4-59–4.4-61, 4.4-63, 4.4-65, 4.11-3–4.11-7, 4.11-9–4.11-12, 4.11-14–4.11-16, 4.11-22–4.11-23, 4.17-11, 4.17-23–4.17-24, 4.24-4
**NPDES:** *See* National Pollutant Discharge Elimination System

— P —

**Pinto Mountain:** 3.9-2, 3.9-4–3.9-5, 4.9-3, 4.9-8
**Poverty line:** 3.16-3
**Public services:** 3.11-4, 3.15-1, 3.15-3–3.15-4, 3.15-7, 4.1-13, 4.15-10–4.15-11, 4.15-16–4.15-17

— R —

**Region of Influence:** 3.1-1, 4.12-1
**Reptiles:** 2-68, 3.3-13, 3.4-9–3.4-11, 3.4-17, 3.4-22, 3.4-25, 3.4-29, 3.4-31, 4.3-16, 4.4-5–4.4-6, 4.4-10, 4.4-17, 4.4-39, 4.4-43–4.4-44, 4.4-53
**Right-of-way:** ES-1–ES-5, 1-1–1-4, 1-7, 1-14, 2-1, 2-3–2-5, 2-14, 2-20, 2-26–2-29, 2-31–2-36, 2-52, 2-55–2-56, 2-61, 2-63, 2-65, 2-67, 2-70, 2-72, 2-74–2-75, 2-77, 3.3-12, 3.6-30–3.6-31, 3.11-3, 3.11-6–3.11-7, 3.13-8, 3.18-1, 3.18-7, 3.19-6, 3.22-1–3.22-8, 4.1-3, 4.1-5, 4.1-8, 4.1-10, 4.1-12, 4.2-18–4.2-19, 4.2-21, 4.3-2–4.3-3, 4.3-41, 4.3-46–4.3-47, 4.3-51, 4.3-61, 4.3-69, 4.4-2, 4.4-42, 4.4-47, 4.4-50–4.4-52, 4.4-55, 4.4-65, 4.5-11, 4.6-1, 4.6-16, 4.6-19, 4.6-30, 4.7-4, 4.7-14–4.7-16, 4.7-21, 4.8-10, 4.8-14, 4.9-1, 4.9-9, 4.9-12, 4.10-8, 4.10-13, 4.11-1–4.11-3, 4.11-5–4.11-15, 4.11-18, 4.12-2, 4.12-24–4.12-25, 4.12-27, 4.12-29, 4.12-31, 4.12-39–4.12-40, 4.13-17, 4.14-7, 4.15-9, 4.16-8, 4.16-13, 4.17-11, 4.17-13, 4.17-15, 4.17-29, 4.18-15–4.18-16, 4.19-14, 4.19-16, 4.19-27, 4.19-29–4.19-30, 4.19-37–4.19-38, 4.19-40–4.19-41, 4.19-43, 4.19-48, 4.20-36, 4.21-8, 5-1
**Riparian:** 3.3-5, 3.3-8, 3.3-24, 3.4-4, 3.4-13–3.4-16, 3.4-23–3.4-27, 3.20-7, 3.20-10, 3.20-12, 4.3-2, 4.3-7, 4.3-42, 4.3-48, 4.3-53, 4.3-59, 4.3-66, 4.17-24, 4.20-11
**ROI:** *See* Region of Influence
**ROW:** *See* Right-of-way

— S —

**San Andreas Fault:** 3.9-4–3.9-5
**SCAB:** *See* South Coast Air Basin
**SCAQMD:** *See* South Coast Air Quality Management District

**Scenic vistas:** ES-7, 2-65, 3.19-3, 3.19-7, 4.17-6, 4.17-20, 4.19-1, 4.19-20, 4.19-30, 4.19-42–4.19-43, 4.19-45, 4.19-47–4.19-49, 4.24-3, 4.24-5
**Seismic hazards:** 3.9-2, 3.9-4–3.9-6, 3.22-5, 4.9-1, 4.9-3–4.9-4, 4.9-8, 4.9-12
**SIP:** *See* State Implementation Plan
**SMA:** *See* Special Management Areas
**South Coast Air Basin:** 3.2-11–3.2-12
**South Coast Air Quality Management District:** 1-2, 1-8, 1-17, 2-20, 3.2-5–3.2-6, 3.2-8–3.2-11, 4.2-1–4.2-2, 4.2-4–4.2-8, 4.2-16, 4.2-24–4.2-27, 4.5-2, 4.5-16, 4.9-5, 4.17-21–4.17-22, 4.17-29, 4.19-15, 4.20-23, 5-8
**Special Management Areas:** 4.12-12
**State Implementation Plan:** 3.2-1–3.2-2, 3.2-4, 3.2-11
**Storm water discharges:** 2-22, 4.9-2
**Storm Water Pollution Prevention Plan:** 1-8, 3.20-2, 4.20-25, 5-3
**Surface water:** 1-3, 2-49, 3.3-24, 3.4-28, 3.20-1, 3.20-3–3.20-4, 3.20-7–3.20-8, 3.20-10–3.20-14, 3.20-22, 3.21-1, 4.3-8–4.3-9, 4.4-22, 4.13-9, 4.13-13, 4.17-3–4.17-5, 4.17-7, 4.17-26, 4.20-1, 4.20-4–4.20-6, 4.20-9–4.20-13, 4.20-15–4.20-19, 4.20-25–4.20-26, 4.20-29–4.20-34, 4.20-46–4.20-47, 4.20-50, 5-3
**SWPPP:** *See* Storm Water Pollution Prevention Plan

**— T —**

**Total Dissolved Solids:** 2-11, 3.20-8, 3.20-24, 4.20-14, 4.20-24
**Total Maximum Daily Load:** 3.20-2

**— U —**

**U.S. Census Bureau:** 3.15-4, 3.16-2–3.16-3, 4.16-1–4.16-2, 4.16-7, 4.16-9–4.16-10
**U.S. Department of the Interior:** ES-4, 1-1, 1-4–1-5, 1-9, 1-14, 1-16, 3.5-3, 3.6-23, 3.7-1, 3.22-9, 5-1

**— V —**

**Vegetation:** ES-6–ES-7, 1-6, 1-13–1-14, 2-14–2-15, 2-17, 2-19–2-21, 2-23–2-25, 2-32, 2-36, 2-38, 2-51, 2-64, 2-77, 3.1-1, 3.2-7–3.2-8, 3.2-13–3.2-14, 3.3-1, 3.3-5–3.3-9, 3.3-13–3.3-15, 3.3-22–3.3-24, 3.4-1, 3.4-9–3.4-10, 3.4-18, 3.4-20, 3.4-26–3.4-28, 3.5-10, 3.7-4, 3.8-1–3.8-3, 3.8-6–3.8-7, 3.9-3, 3.9-7–3.9-8, 3.11-4, 3.12-8, 3.19-2, 3.19-6, 3.19-3, 3.19-5–3.19-9, 3.19-11–3.19-15, 3.20-2, 3.20-10, 3.20-12, 4.1-15, 4.2-8, 4.2-10–4.2-13, 4.2-15, 4.3-1–4.3-12, 4.3-16–4.3-20, 4.3-22, 4.3-31–4.3-34, 4.3-36–4.3-59, 4.3-61–4.3-65, 4.3-67–4.3-71, 4.4-1, 4.4-3–4.4-5, 4.4-10–4.4-11, 4.4-13–4.4-14, 4.4-18–4.4-20, 4.4-22–4.4-24, 4.4-30, 4.4-32–4.4-33, 4.4-39, 4.4-42–4.4-43, 4.4-45–4.4-46, 4.4-49, 4.4-52–4.4-56, 4.4-59–4.4-62, 4.4-65–4.4-66, 4.5-2–4.5-8, 4.6-30, 4.7-21, 4.8-1, 4.8-4, 4.9-11, 4.9-13, 4.11-3–4.11-5, 4.11-9–4.11-10, 4.11-12–4.11-17, 4.11-21, 4.12-1, 4.12-3, 4.12-5, 4.12-12–4.12-13, 4.13-3–4.13-5, 4.13-13, 4.13-22, 4.14-3, 4.15-4, 4.15-8, 4.17-2–4.17-14, 4.17-20, 4.17-29, 4.19-2, 4.19-4–4.19-5, 4.19-9–4.19-18, 4.19-20, 4.19-22, 4.19-24–4.19-26, 4.19-28–4.19-30, 4.19-32–4.19-35, 4.19-41, 4.19-44–4.19-45, 4.20-11, 4.20-16, 4.20-19, 4.20-30–4.20-31, 4.20-33, 4.20-48, 4.23-1, 4.24-1, 4.24-3, 5-4
**Visibility:** 3.2-4–3.2-5, 3.2-13, 3.19-5, 3.19-8–3.19-9, 3.19-12–3.19-15, 4.2-5, 4.2-7–4.2-8, 4.2-10, 4.2-12, 4.2-17–4.2-18, 4.2-20–4.2-21, 4.2-23–4.2-24, 4.2-27, 4.17-21–4.17-22, 4.19-1, 4.19-4–4.19-5, 4.19-9, 4.19-12, 4.19-14, 4.19-16, 4.19-22, 4.19-25, 4.19-35
**Visual Resource Management:** ES-6, ES-8, 3.19-1–3.19-4, 3.19-6, 3.19-11–3.19-15, 4.14-9, 4.17-6, 4.17-14, 4.17-20, 4.19-2–4.19-3, 4.19-9–4.19-12, 4.19-21, 4.19-24–4.19-26, 4.19-28–4.19-35, 4.19-42, 4.19-44, 4.19-46–4.19-47, 4.19-49–4.19-50, 4.24-3, 4.24-5
**VRM:** *See* Visual Resource Management

**— W —**

**Wells:** 1-8, 2-4, 2-10, 2-12, 2-16, 2-18, 3.3-10, 3.6-7, 3.6-10, 3.6-25, 3.8-5, 3.11-6, 3.18-4, 3.20-3–3.20-4, 3.20-8–3.20-9, 3.20-14, 3.20-18, 3.20-23, 4.2-3, 4.3-36, 4.9-3, 4.20-4–4.20-5, 4.20-15, 4.20-24, 4.20-26, 4.20-48

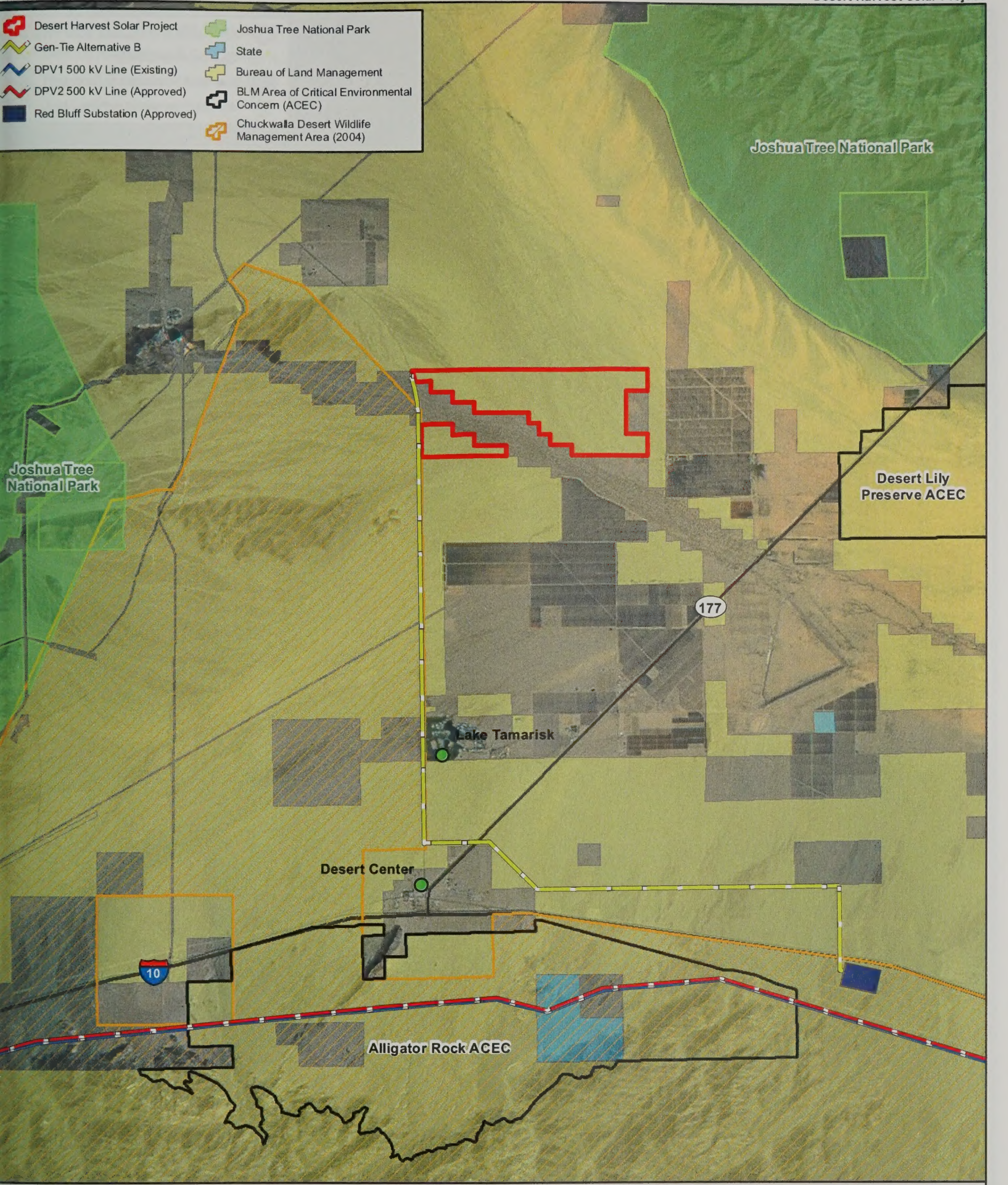
**Wetlands:** 3.3-2–3.3-3, 3.3-5, 3.3-9, 3.4-4, 3.4-12–3.4-13, 3.20-2, 4.3-60, 4.3-67–4.3-71, 4.4-48, 4.17-24

**Wildlife:** ES-1, ES-6–ES-7, 1-2–1-3, 1-6, 1-12, 1-17, 2-21, 2-24, 2-36, 2-39, 2-52, 2-64–2-65, 2-68–2-69, 3.1-1, 3.3-1–3.3-2, 3.3-4–3.3-6, 3.3-11, 3.3-13–3.3-15, 3.4-1–3.4-11, 3.4-29–3.4-31, 3.10-4, 3.11-2, 3.11-6, 3.14-1, 3.19-1–3.19-3, 3.19-5, 3.19-4, 3.19-7, 3.20-2, 3.20-7, 3.20-12–3.20-13, 4.1-15, 4.2-10, 4.3-3, 4.3-5–4.3-6, 4.3-8, 4.3-10, 4.3-12, 4.3-15–4.3-17, 4.3-20–4.3-23, 4.3-25, 4.3-29, 4.3-32–4.3-33, 4.3-37, 4.3-42–4.3-44, 4.3-48–4.3-50, 4.3-52–4.3-54, 4.3-58–4.3-59, 4.3-61, 4.3-63, 4.3-65, 4.4-1–4.4-6, 4.4-8, 4.4-10–4.4-11, 4.4-14–4.4-28, 4.4-39–4.4-47, 4.4-49–4.4-57, 4.4-59, 4.4-61–4.4-66, 4.5-4, 4.6-10, 4.7-9, 4.8-14, 4.10-4, 4.11-3–4.11-5, 4.11-9–4.11-10, 4.11-12–4.11-17, 4.11-21, 4.12-1, 4.12-14, 4.13-13, 4.13-20, 4.14-3, 4.17-1–4.17-2, 4.17-4–4.17-5, 4.17-11–4.17-12, 4.17-18, 4.17-23–4.17-24, 4.18-9, 4.19-21, 4.20-11, 4.20-16, 4.20-19, 4.21-4, 4.24-1–4.24-2, 4.24-4, 5-2, 5-8

**Wind erosion:** 3.2-13–3.2-14, 3.9-7–3.9-8, 4.2-4, 4.2-6–4.2-7, 4.2-16, 4.3-42, 4.3-48, 4.3-52, 4.9-3–4.9-4, 4.9-15, 4.17-21

# Appendix A

## Figures

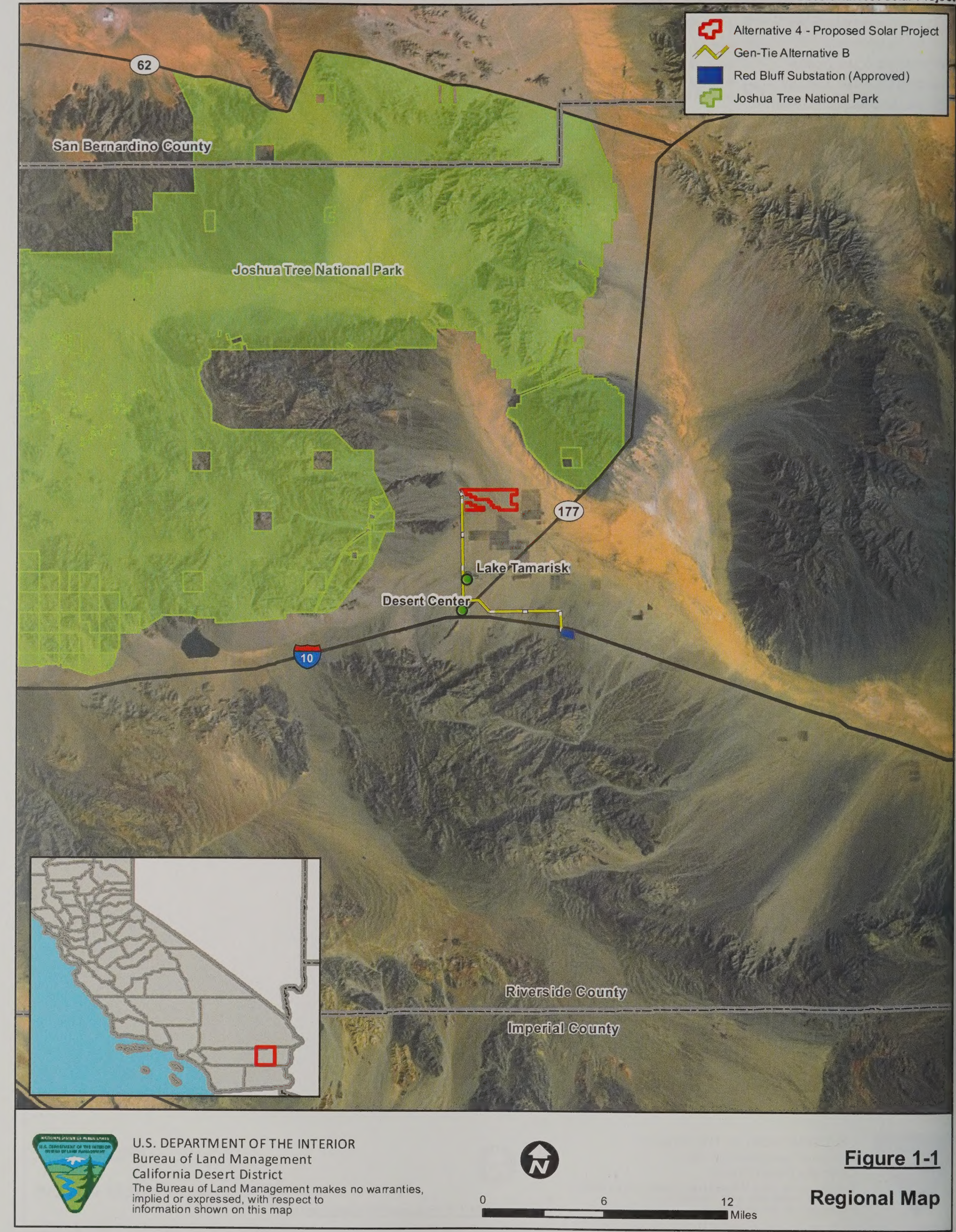

Desert Harvest Solar Project
Gen-Tie Alternative B
DPV1 500 kV Line (Existing)
DPV2 500 kV Line (Approved)
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
Joshua Tree National Park
Joshua Tree National Park
Desert Lily Preserve ACEC
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
N
0
1.5
3
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure ES-1

## Proposed Project Layout

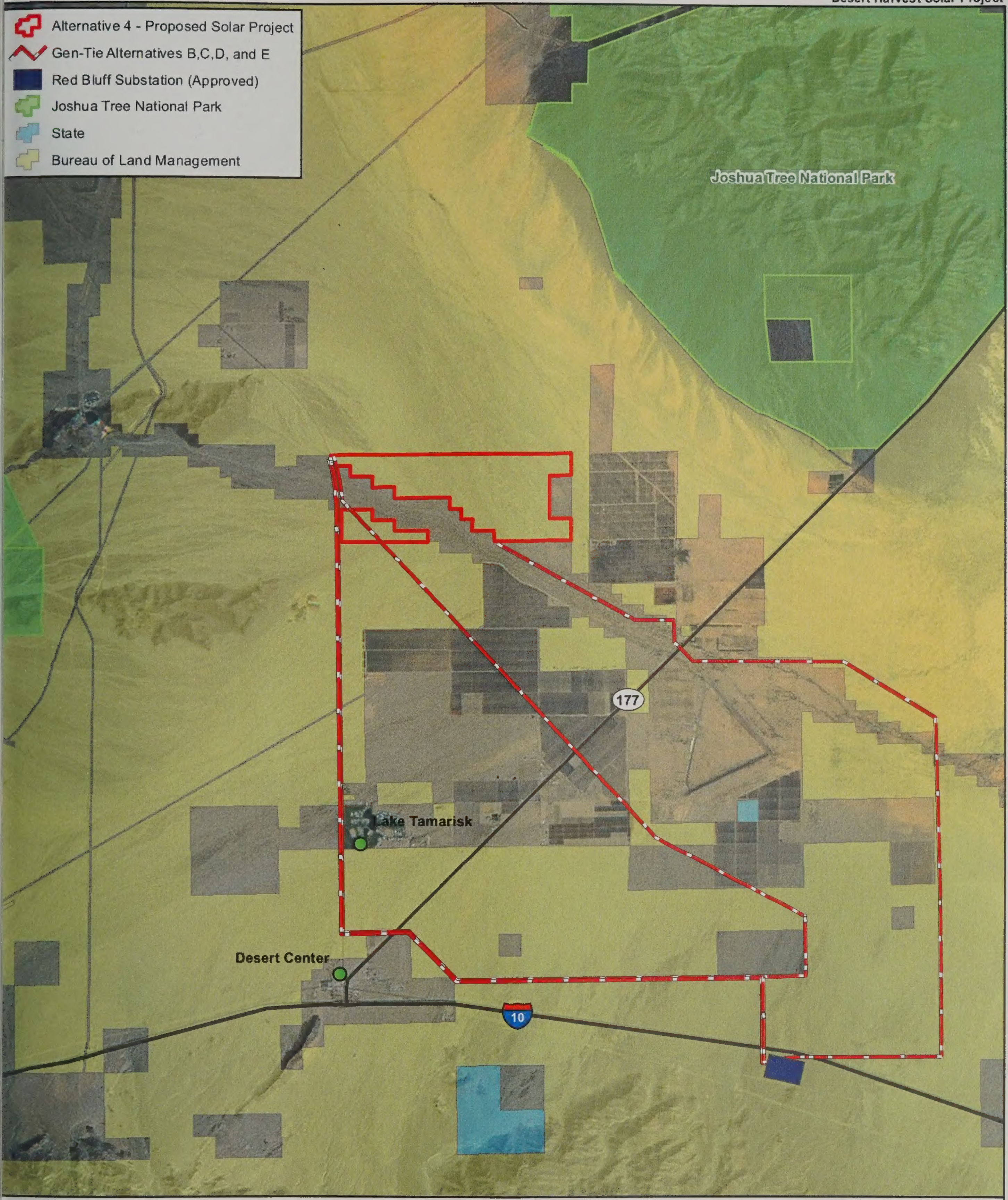

🟥 Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B
🟦 Red Bluff Substation (Approved)
🟩 Joshua Tree National Park
62
San Bernardino County
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10
Riverside County
Imperial County
N
0
6
12
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 1-1**

**Regional Map**

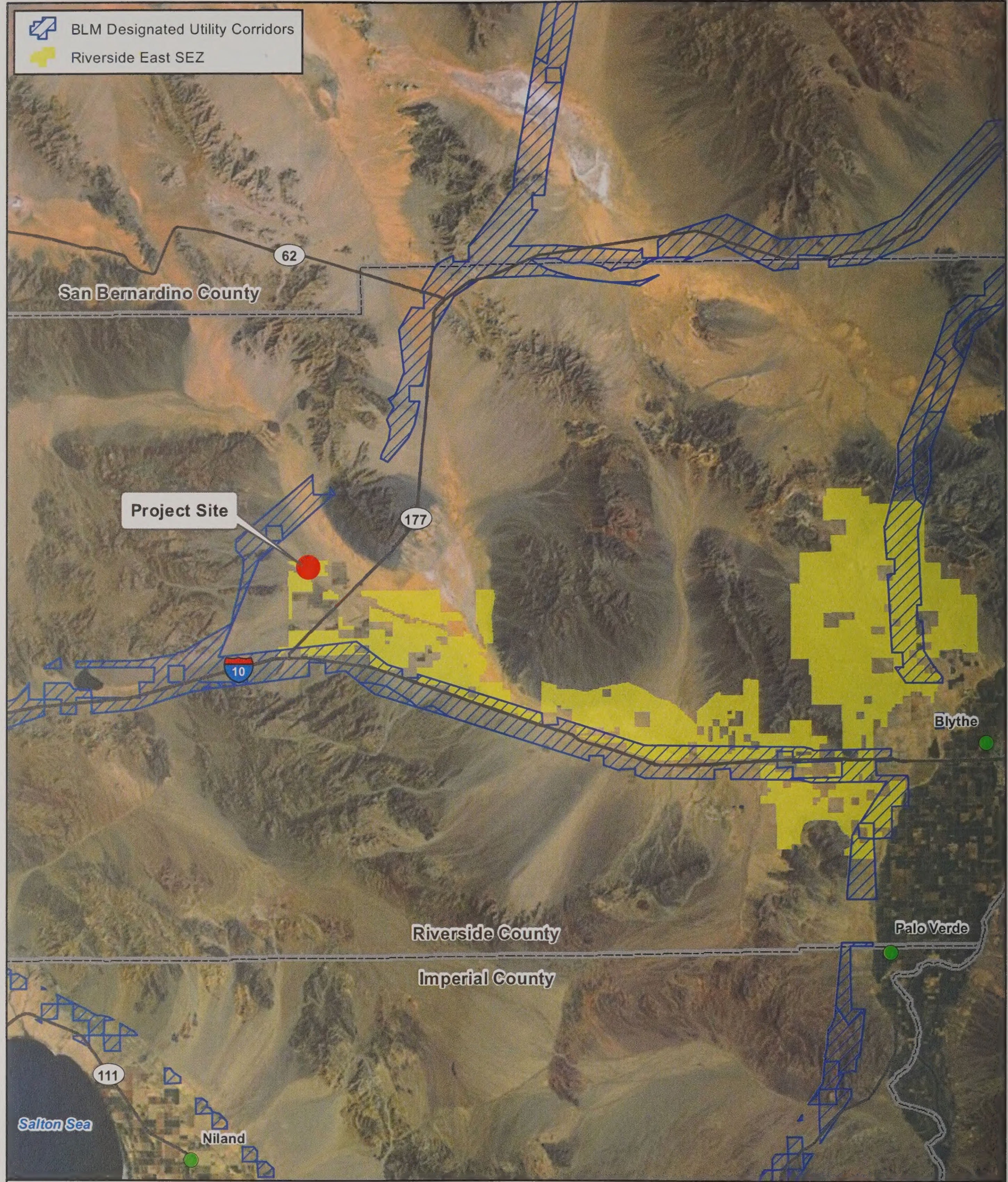

Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B,C,D, and E
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10
N
0
1.5
3
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 1-2**

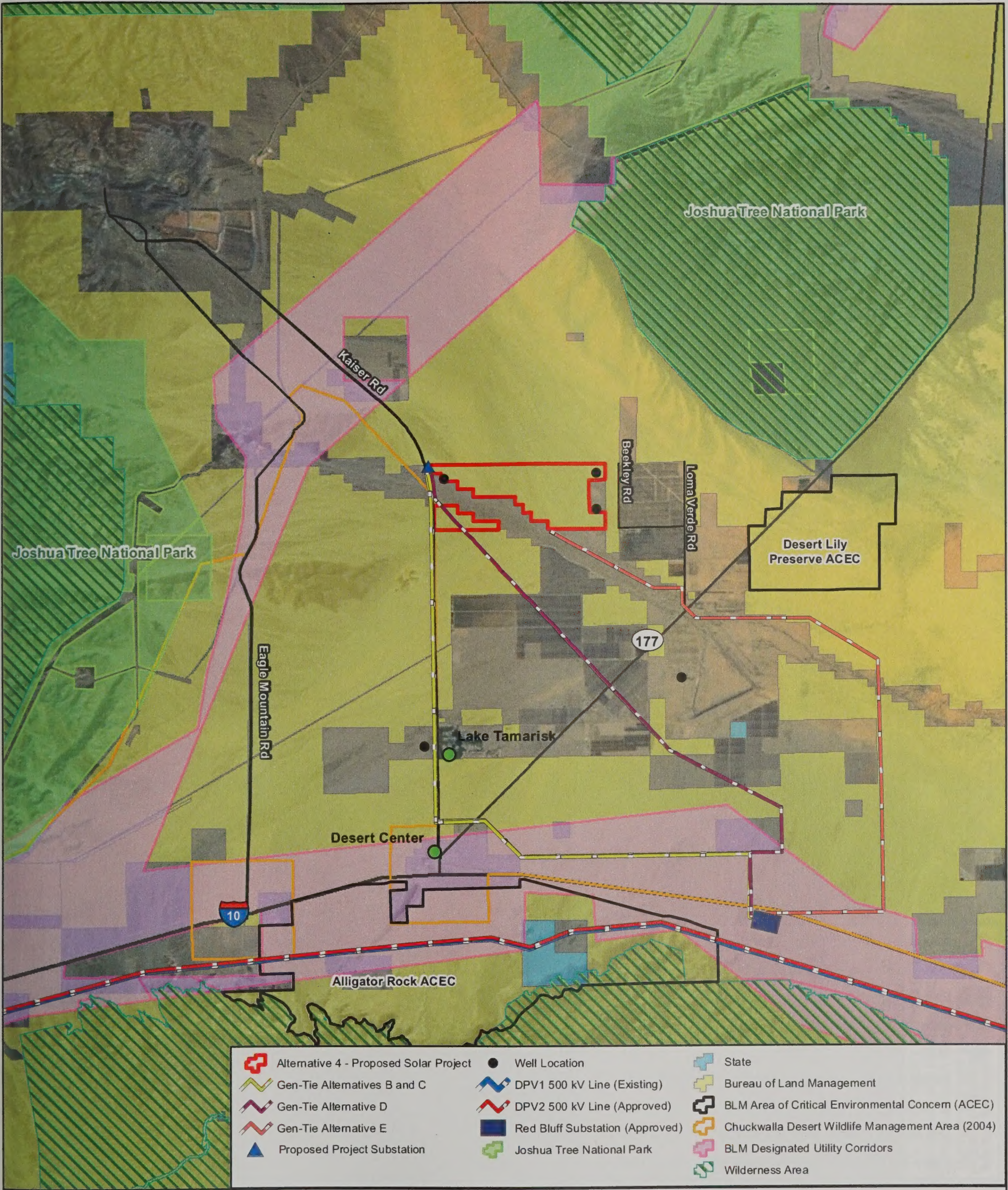
**Project Study Area**



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure 1-3

## BLM Solar Energy Study Areas in Project Area

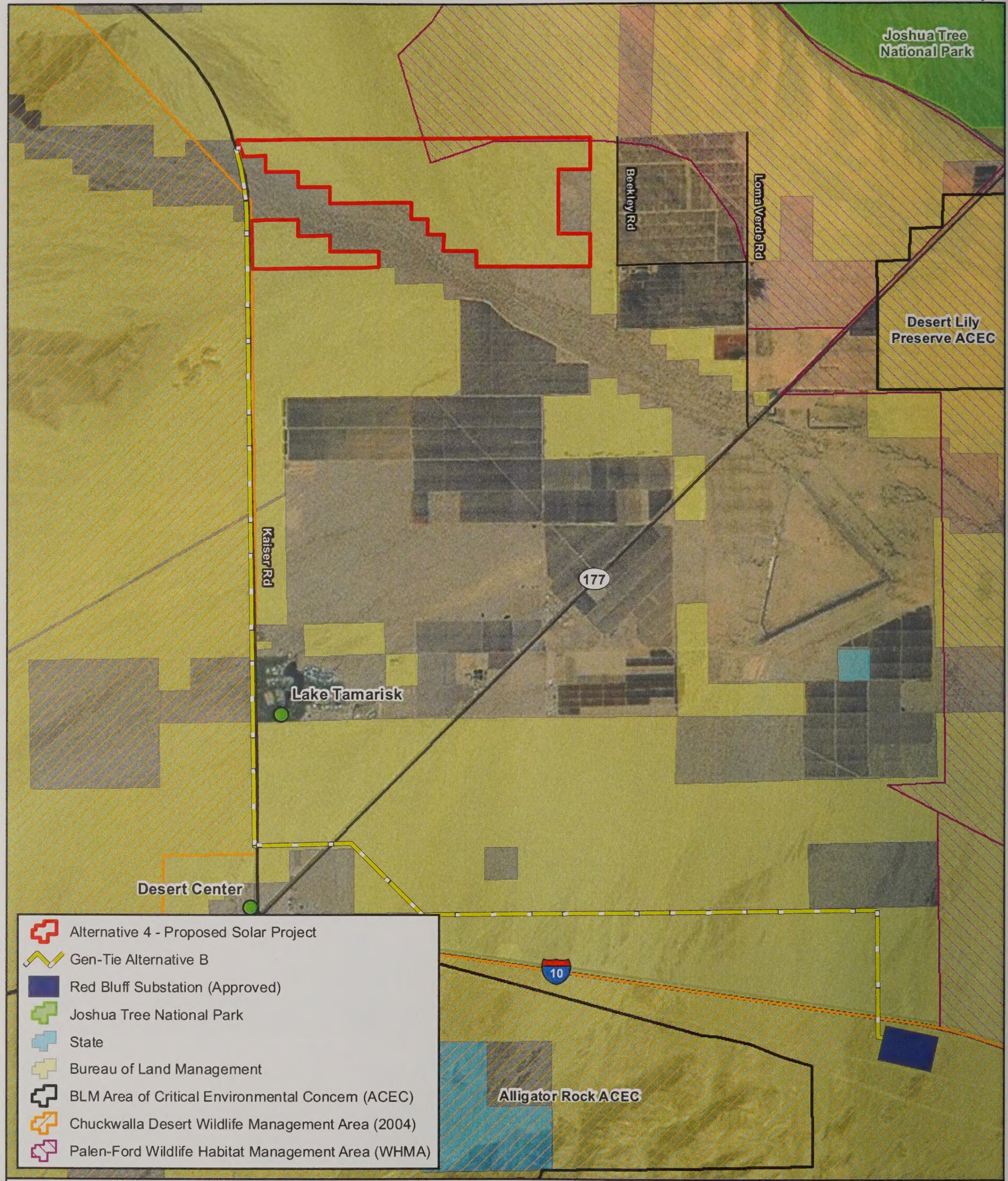

Joshua Tree National Park
Joshua Tree National Park
Kaiser Rd
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
177
Eagle Mountain Rd
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Proposed Project Substation
Well Location
DPV1 500 kV Line (Existing)
DPV2 500 kV Line (Approved)
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
BLM Designated Utility Corridors
Wilderness Area
N
0
2
4
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 2-1**

**Project Overview**


Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
Palen-Ford Wildlife Habitat Management Area (WHMA)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

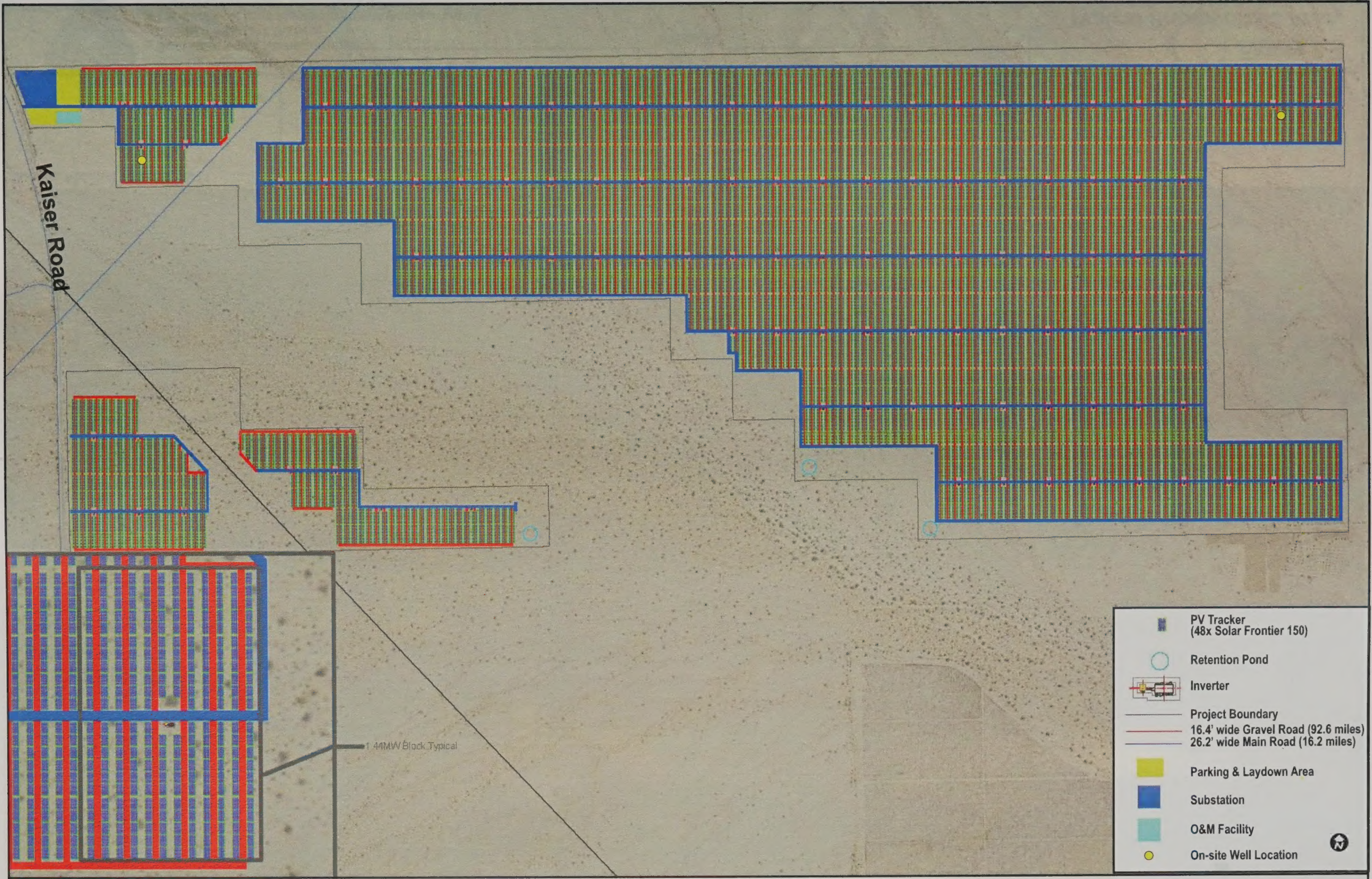
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

N

0 0.5 1 Miles

**Figure 2-2**

**Alternative 4: Proposed Solar Project**

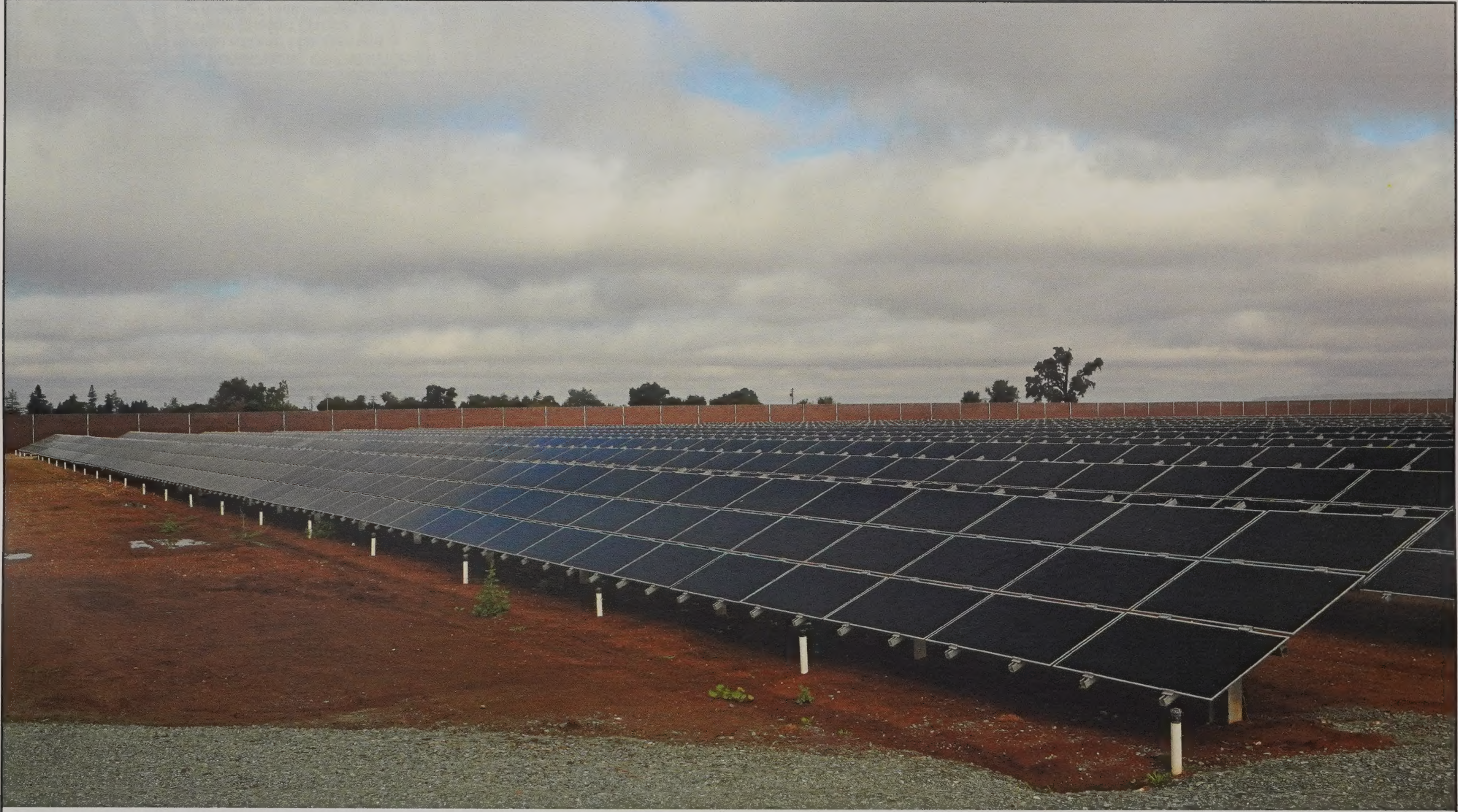


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

**Figure 2-3**

**Alternative 4: PV Array Layout**



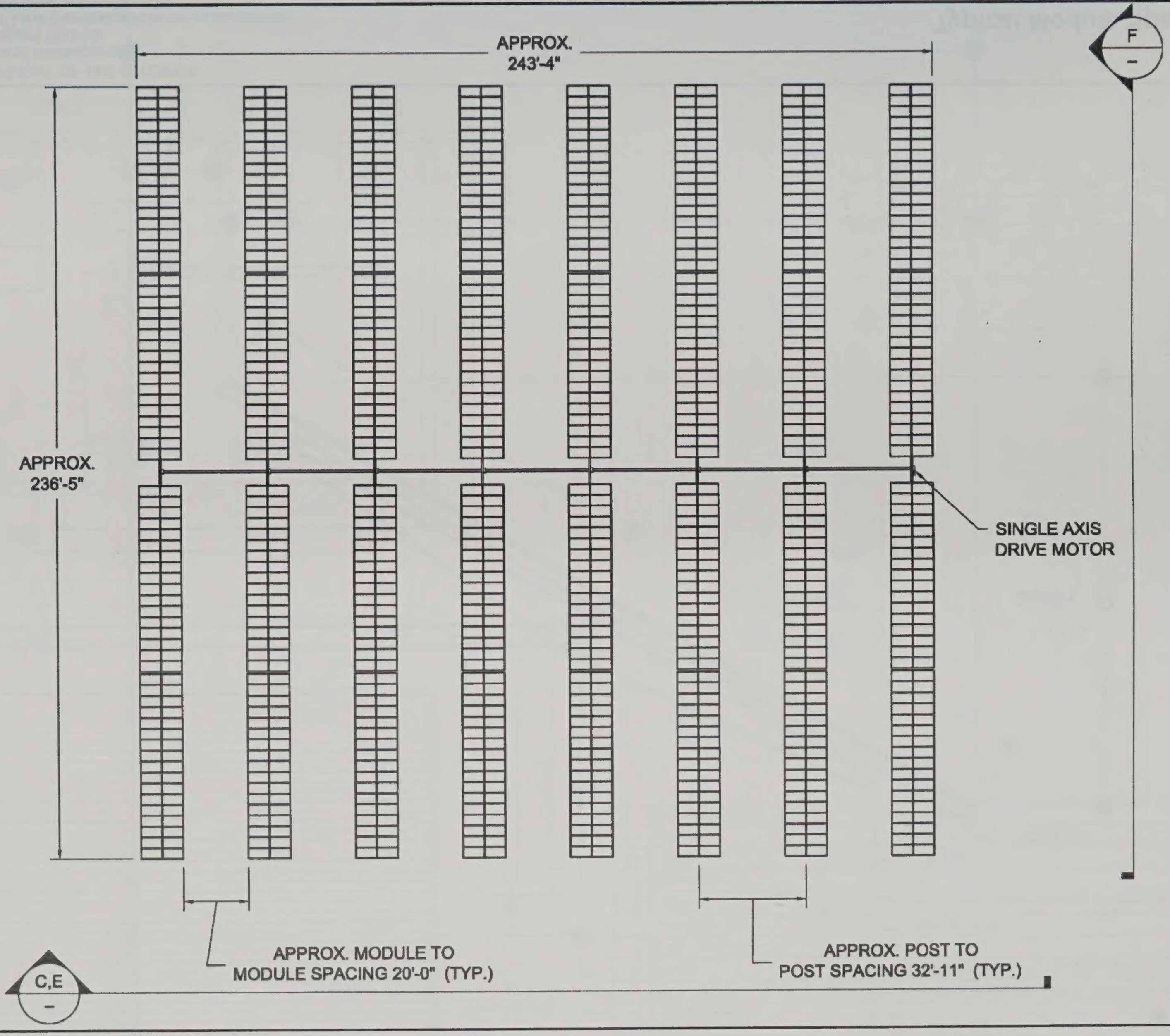
Source: Michael Clayton, 2011.

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

**Figure 2-4**

**Typical Photovoltaic Array**

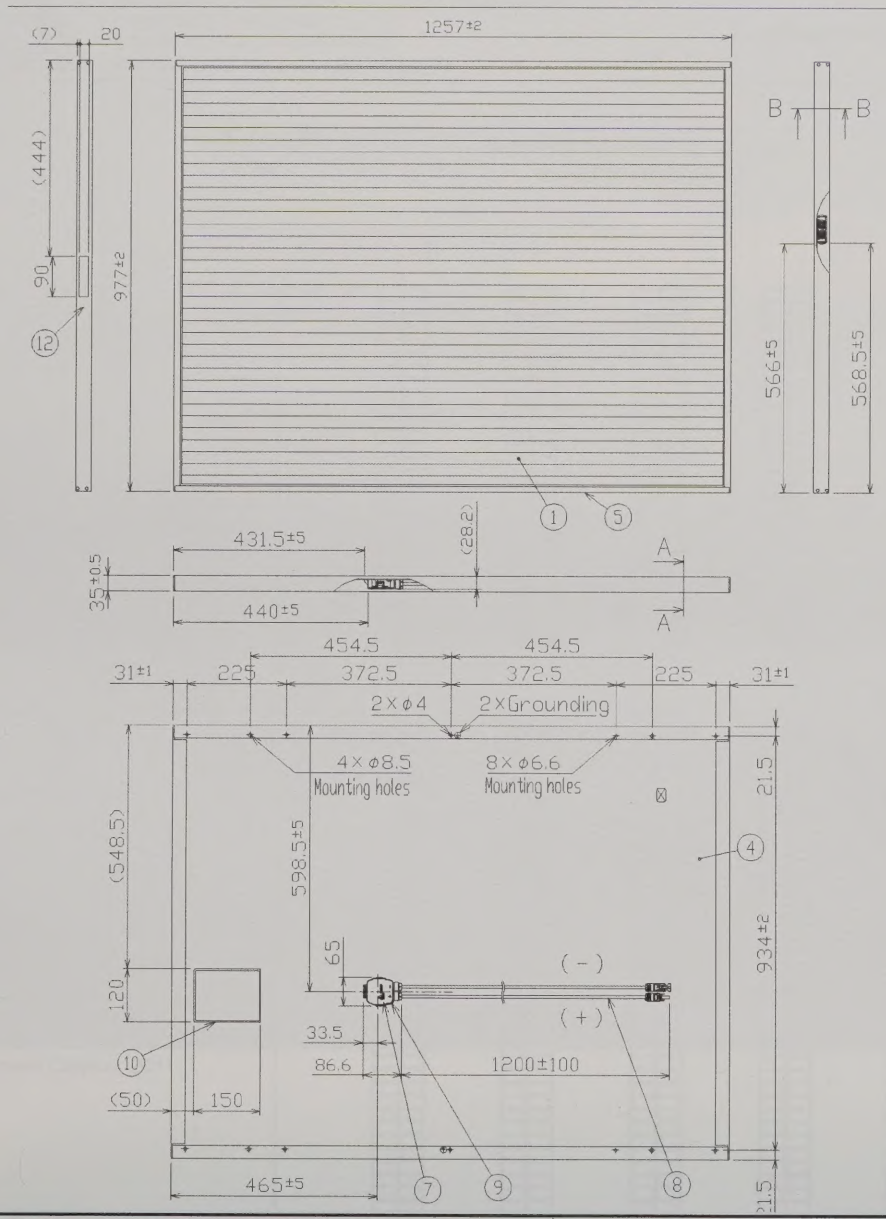

APPROX. 243'-4"
F
–
APPROX. 236'-5"
SINGLE AXIS DRIVE MOTOR
APPROX. MODULE TO MODULE SPACING 20'-0" (TYP.)
APPROX. POST TO POST SPACING 32'-11" (TYP.)
C,E
–

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

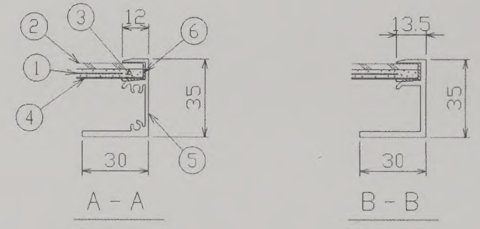
The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

Figure 2-5

Typical Array Configuration



| NO. | ITEM | QT'Y | DESCRIPTION |
|---|---|---|---|
| 1 | Cell | 1 | CIS (Substrate glass) |
| 2 | Cover glass | 1 | Clear tempered glass |
| 3 | Encapsulant | | EVA |
| 4 | Back sheet | | Weatherproof plastic film / Color: Black |
| 5 | Frame | 1SET | Anodized aluminum alloy / Color: Black |
| 6 | Edge sealant | | Butyl |
| 7 | Junction Box | 1 | With Bypass diode |
| 8 | Cable | | 2.5mm²/AWG14 (with waterproof and locking type connector) |
| 9 | Adhesive | | Silicone |
| 10 | Label | 1 | Product label |
| 11 | Screw | 8 | Stainless tapping (SUS304J3) |
| 12 | Bar Code label | 1 | Serial number |



1) Tolerances ISO 2768-1-C

| | | | |
|---|---|---|---|
| 0.5~3 | ±0.2 | ~400 | ±1.2 |
| ~6 | ±0.3 | ~1000 | ±2 |
| ~30 | ±0.5 | ~2000 | ±3 |
| ~120 | ±0.8 | Unit:mm | |

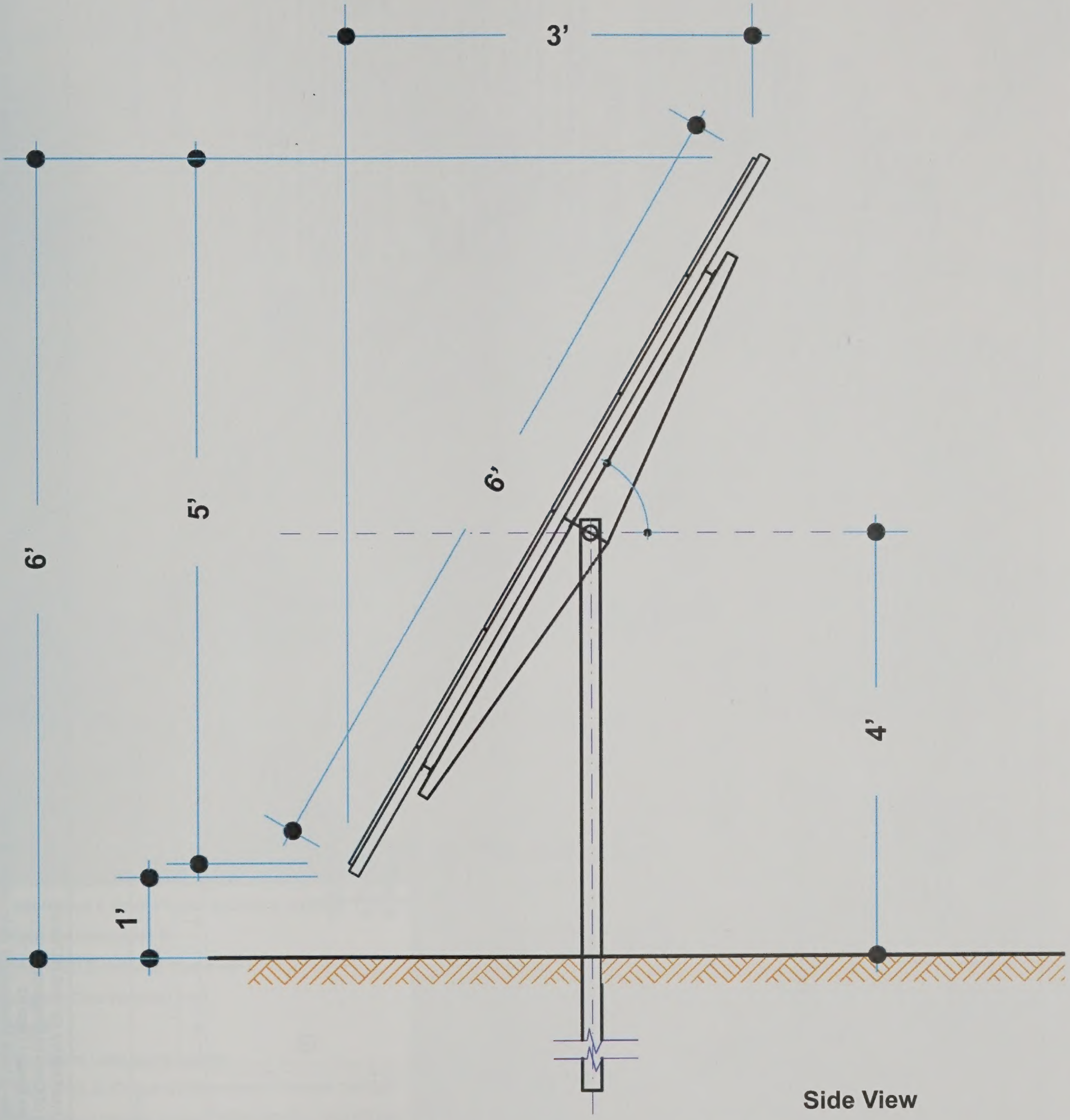
2) ( ) value: Reference value

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

**Figure 2-6**

**Typical Module Specifications**



Side View

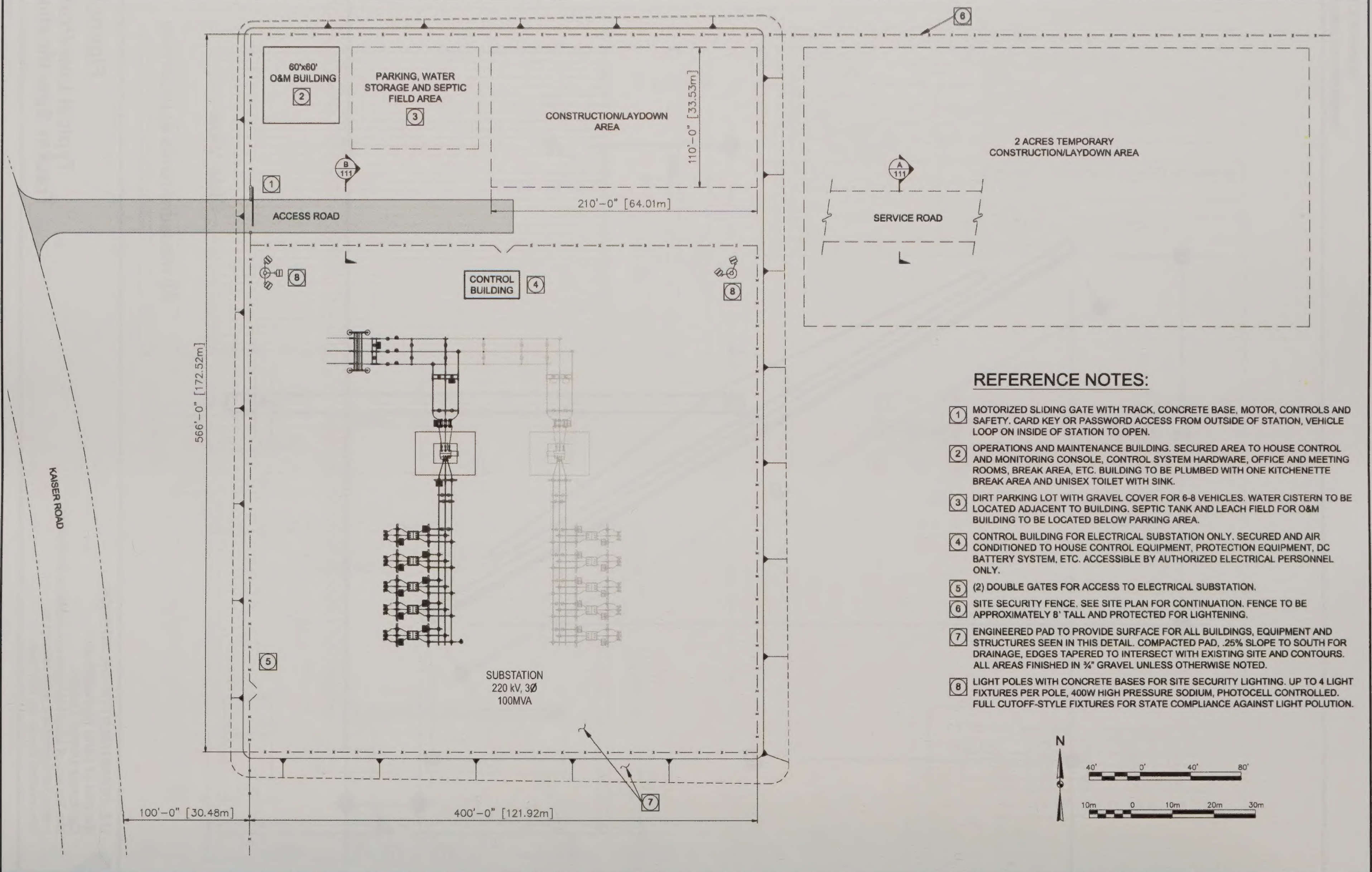
All measurements approximate

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

**Figure 2-7**

**Typical Low-Profile Tracker Specifications**



## REFERENCE NOTES:

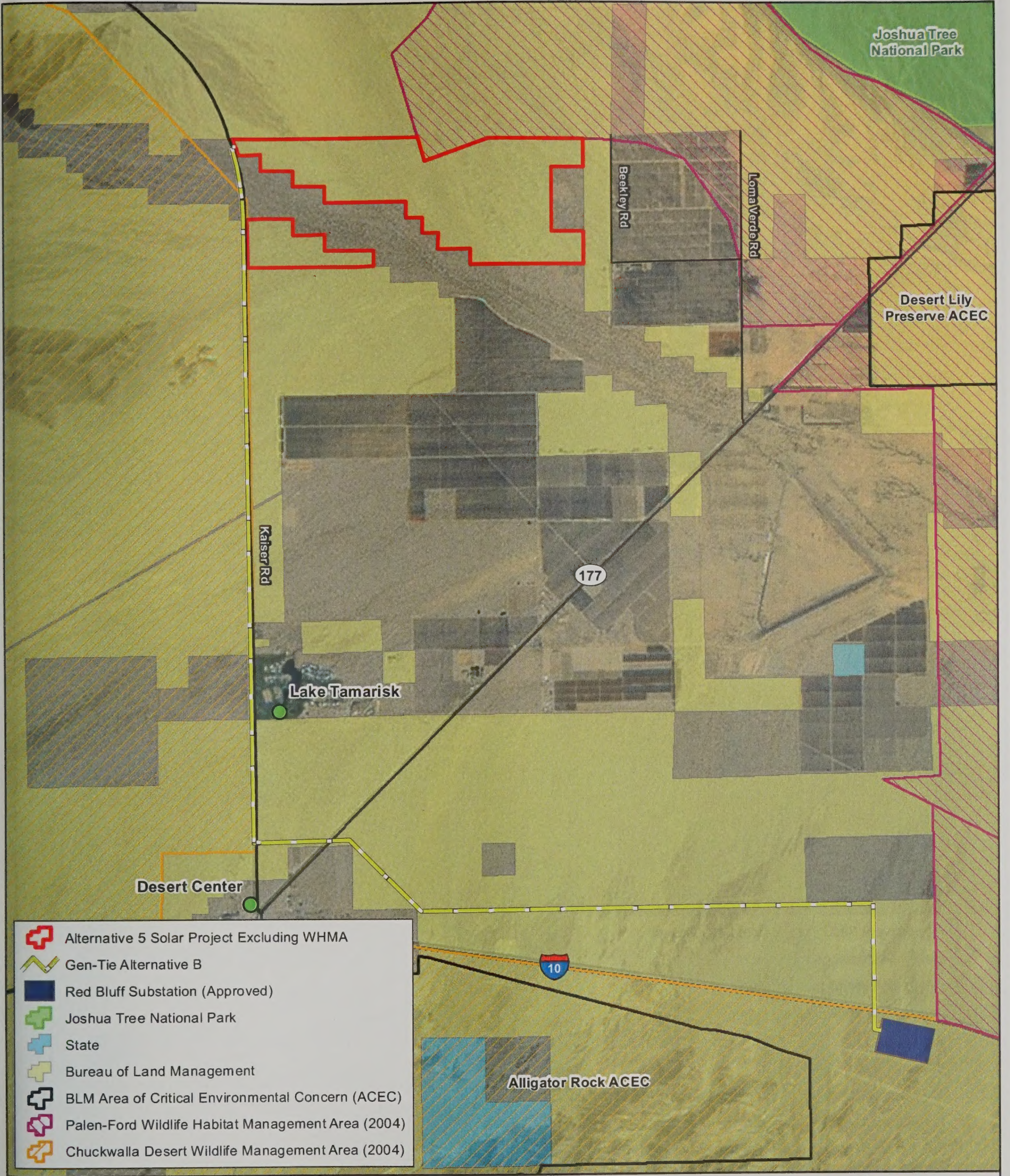
1. MOTORIZED SLIDING GATE WITH TRACK, CONCRETE BASE, MOTOR, CONTROLS AND SAFETY. CARD KEY OR PASSWORD ACCESS FROM OUTSIDE OF STATION, VEHICLE LOOP ON INSIDE OF STATION TO OPEN.
2. OPERATIONS AND MAINTENANCE BUILDING. SECURED AREA TO HOUSE CONTROL AND MONITORING CONSOLE, CONTROL SYSTEM HARDWARE, OFFICE AND MEETING ROOMS, BREAK AREA, ETC. BUILDING TO BE PLUMBED WITH ONE KITCHENETTE BREAK AREA AND UNISEX TOILET WITH SINK.
3. DIRT PARKING LOT WITH GRAVEL COVER FOR 6-8 VEHICLES. WATER CISTERN TO BE LOCATED ADJACENT TO BUILDING. SEPTIC TANK AND LEACH FIELD FOR O&M BUILDING TO BE LOCATED BELOW PARKING AREA.
4. CONTROL BUILDING FOR ELECTRICAL SUBSTATION ONLY. SECURED AND AIR CONDITIONED TO HOUSE CONTROL EQUIPMENT, PROTECTION EQUIPMENT, DC BATTERY SYSTEM, ETC. ACCESSIBLE BY AUTHORIZED ELECTRICAL PERSONNEL ONLY.
5. (2) DOUBLE GATES FOR ACCESS TO ELECTRICAL SUBSTATION.
6. SITE SECURITY FENCE. SEE SITE PLAN FOR CONTINUATION. FENCE TO BE APPROXIMATELY 8' TALL AND PROTECTED FOR LIGHTENING.
7. ENGINEERED PAD TO PROVIDE SURFACE FOR ALL BUILDINGS, EQUIPMENT AND STRUCTURES SEEN IN THIS DETAIL. COMPACTED PAD, .25% SLOPE TO SOUTH FOR DRAINAGE, EDGES TAPERED TO INTERSECT WITH EXISTING SITE AND CONTOURS. ALL AREAS FINISHED IN ¾" GRAVEL UNLESS OTHERWISE NOTED.
8. LIGHT POLES WITH CONCRETE BASES FOR SITE SECURITY LIGHTING. UP TO 4 LIGHT FIXTURES PER POLE, 400W HIGH PRESSURE SODIUM, PHOTOCELL CONTROLLED. FULL CUTOFF-STYLE FIXTURES FOR STATE COMPLIANCE AGAINST LIGHT POLUTION.

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

**Figure 2-8**

**Electrical Plan for On-site Substation**



- 🟥 Alternative 5 Solar Project Excluding WHMA
- Gen-Tie Alternative B
- 🟦 Red Bluff Substation (Approved)
- 🟩 Joshua Tree National Park
- State
- Bureau of Land Management
- BLM Area of Critical Environmental Concern (ACEC)
- Palen-Ford Wildlife Habitat Management Area (2004)
- Chuckwalla Desert Wildlife Management Area (2004)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

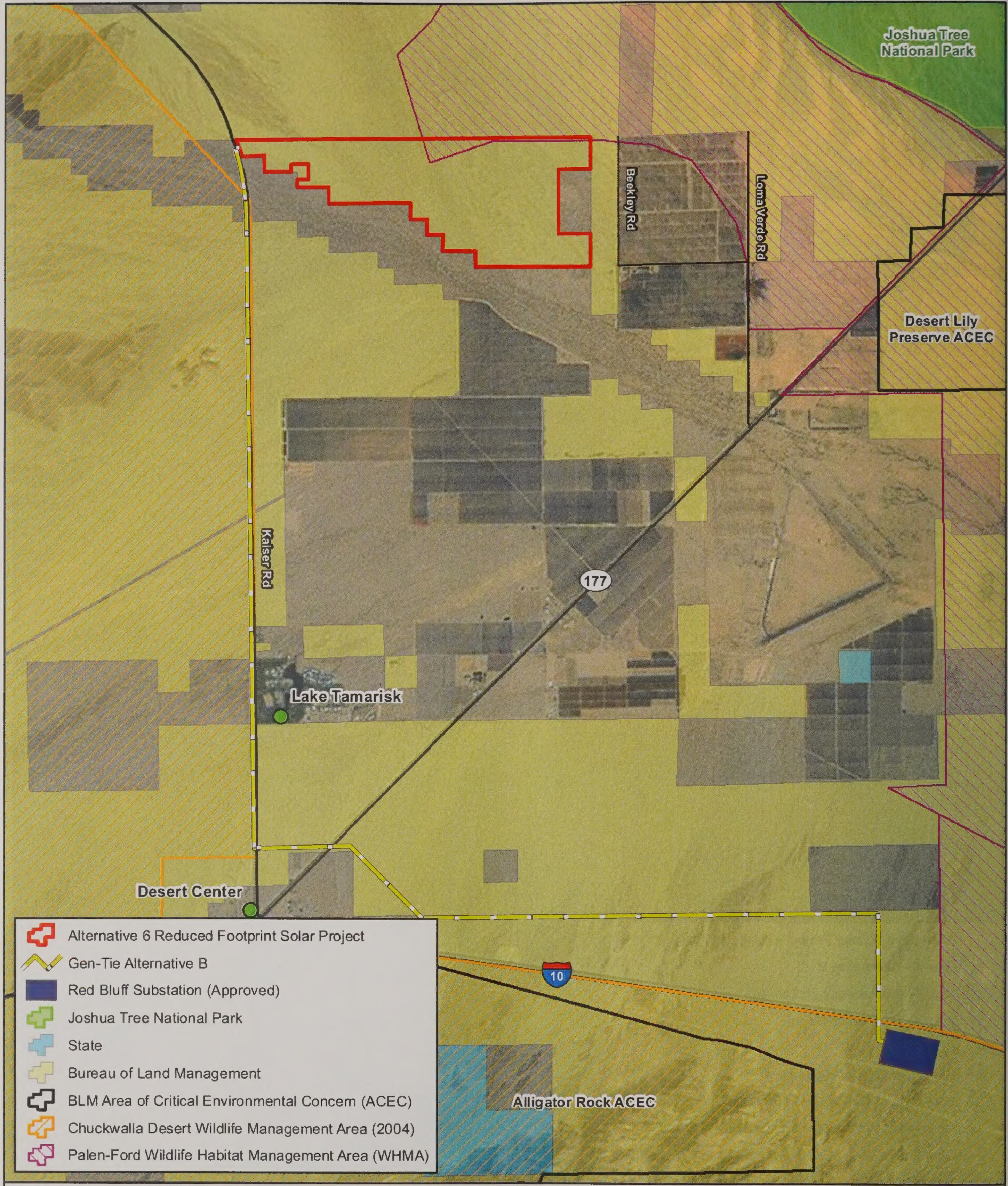
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

N

0 0.5 1 Miles

## Figure 2-9

## Alternative 5: Solar Project Excluding WHMA

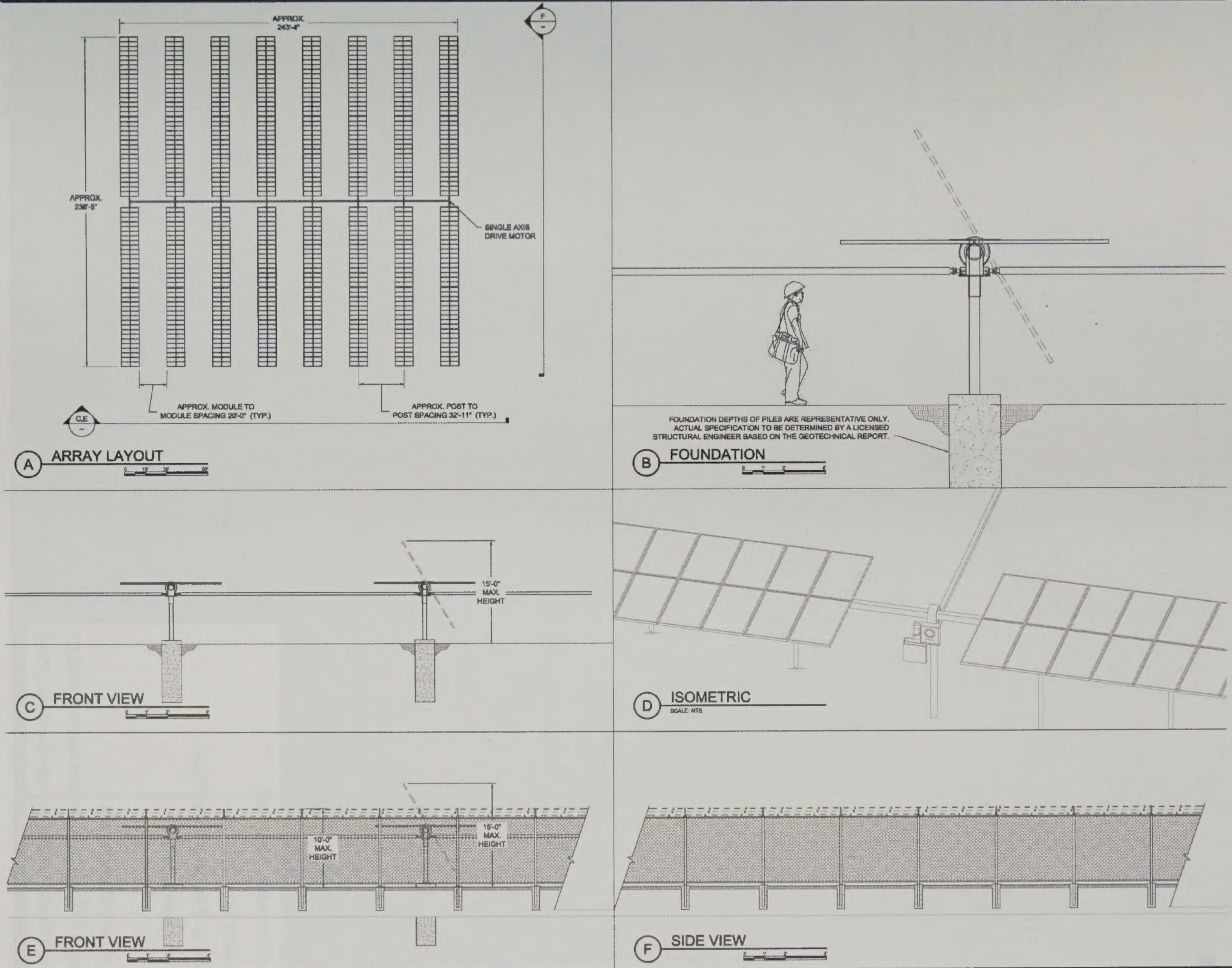

Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Alternative 6 Reduced Footprint Solar Project
Gen-Tie Alternative B
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
Palen-Ford Wildlife Habitat Management Area (WHMA)
N
0
0.5
1
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 2-10**

**Alternative 6: Reduced Footprint Solar Project**

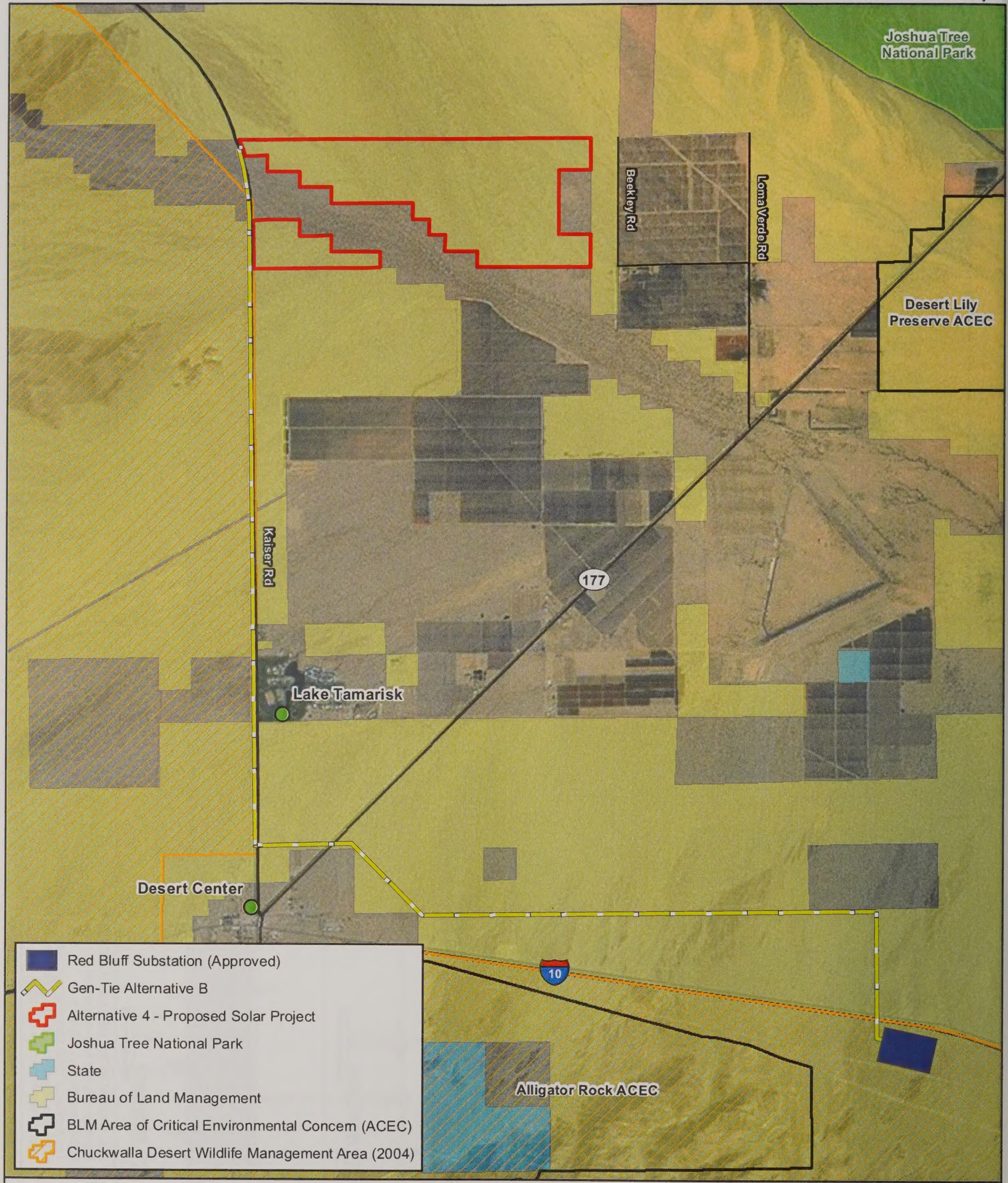


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,
implied or expressed, with respect to
information shown on this map.

Figure 2-11

High-Profile 15 Foot Tracking Panel

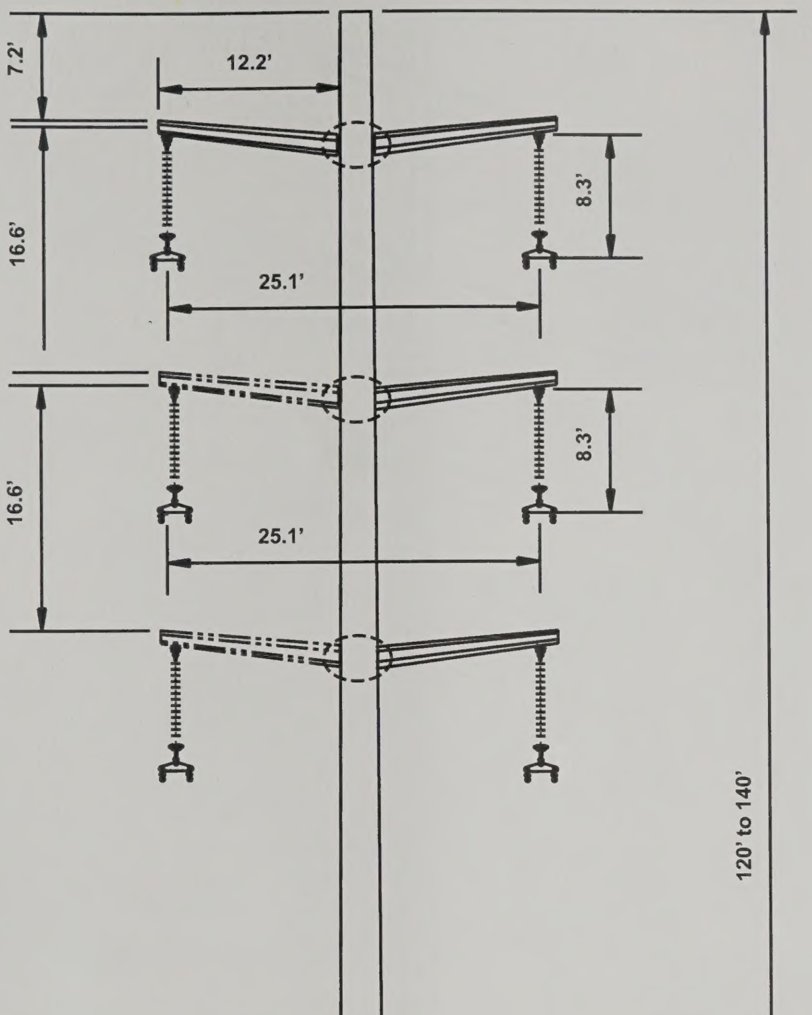

Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Red Bluff Substation (Approved)
Gen-Tie Alternative B
Alternative 4 - Proposed Solar Project
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concem (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 2-12**

**Alternative B: Proposed Gen-Tie (Shared Towers)**



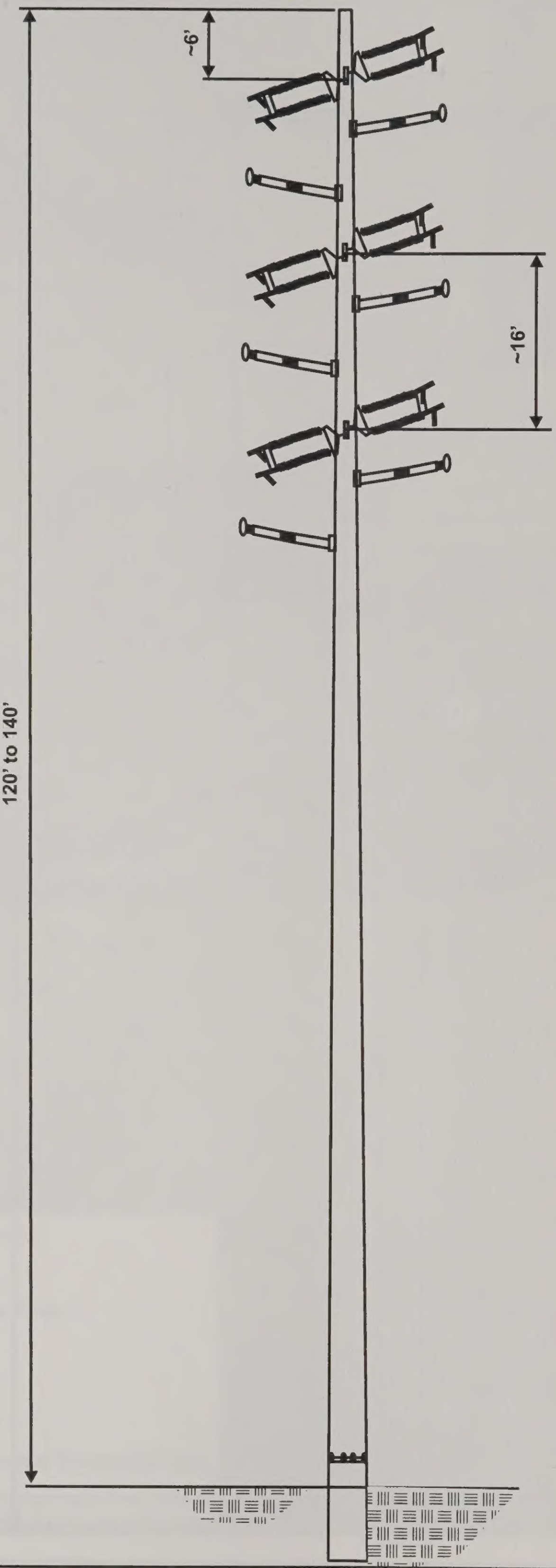
Source: SCE, 2007a.

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

Figure 2-13a

Typical 220-kV Line Monopole Double-Circuit Tangent Structure



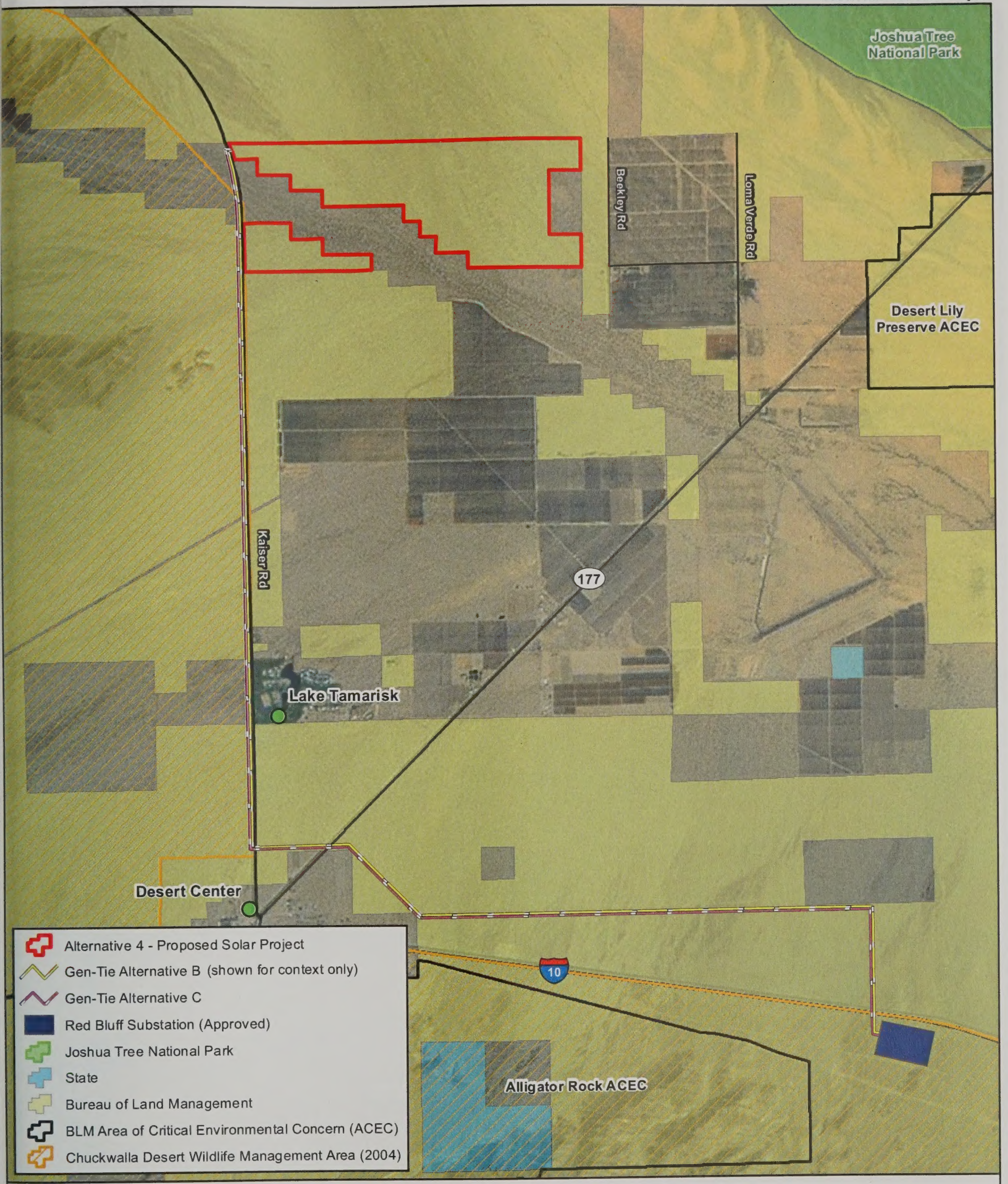
Source: SCE, 2007a.

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

## Figure 2-13b

## Typical 220-kV Line Monopole Double-Circuit Dead End Structure

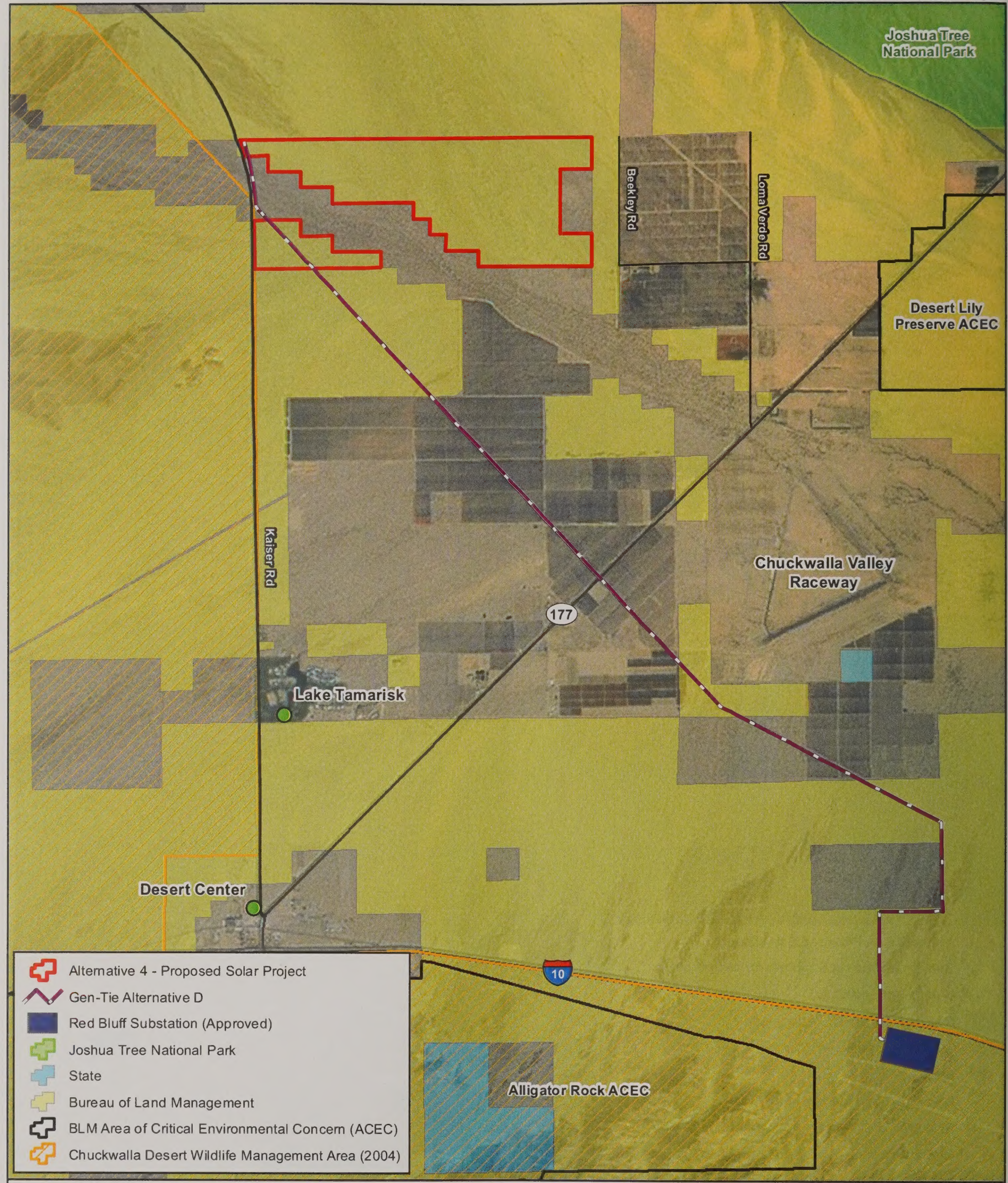

Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B (shown for context only)
Gen-Tie Alternative C
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
0
0.5
1
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure 2-14

Alternative C: Separate Transmission Towers Within Same ROW


Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Chuckwalla Valley Raceway
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC
Alternative 4 - Proposed Solar Project
Gen-Tie Alternative D
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)

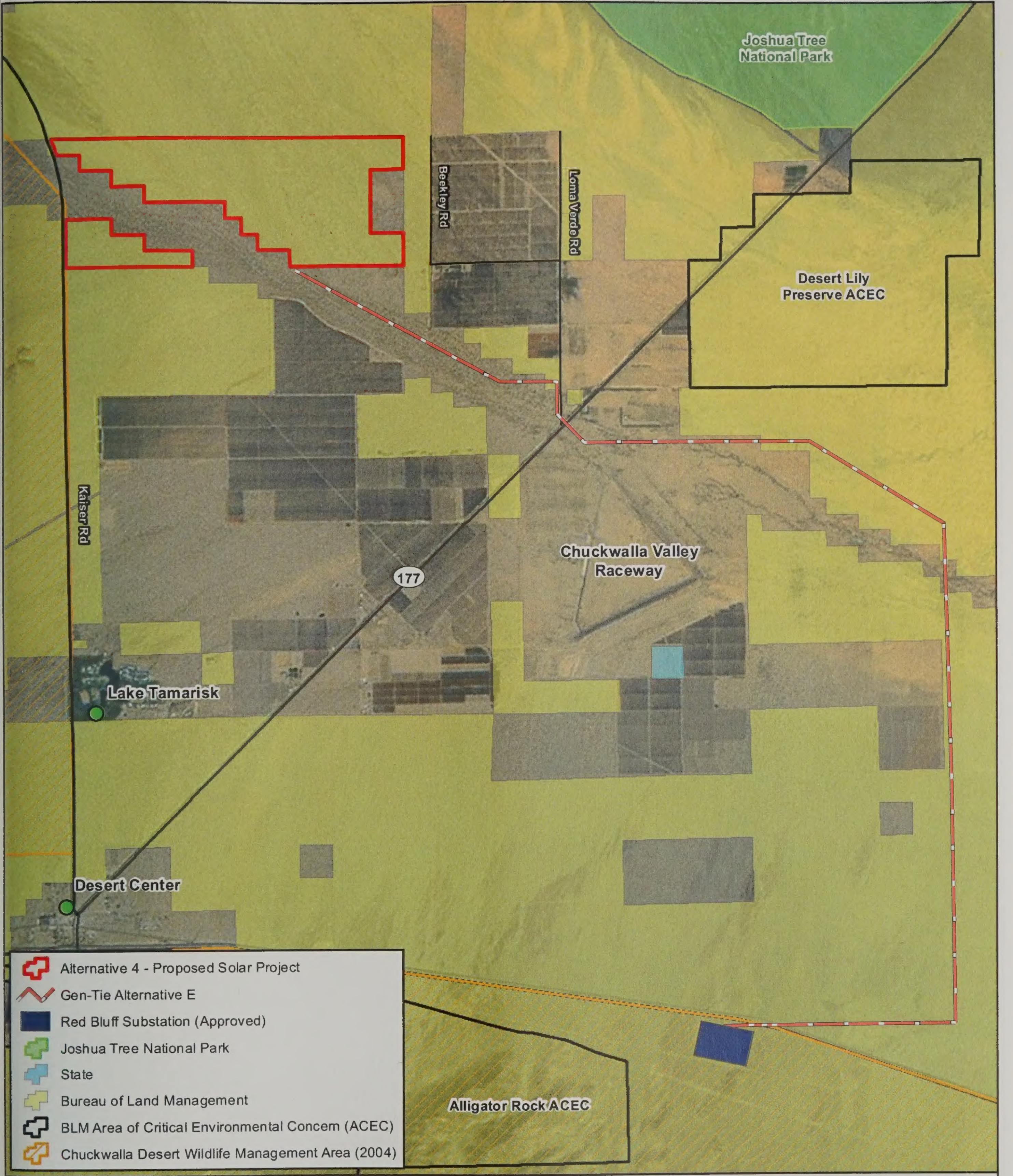
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

0 0.5 1 Miles

**Figure 2-15**

**Alternative D: Cross-Valley Alignment**

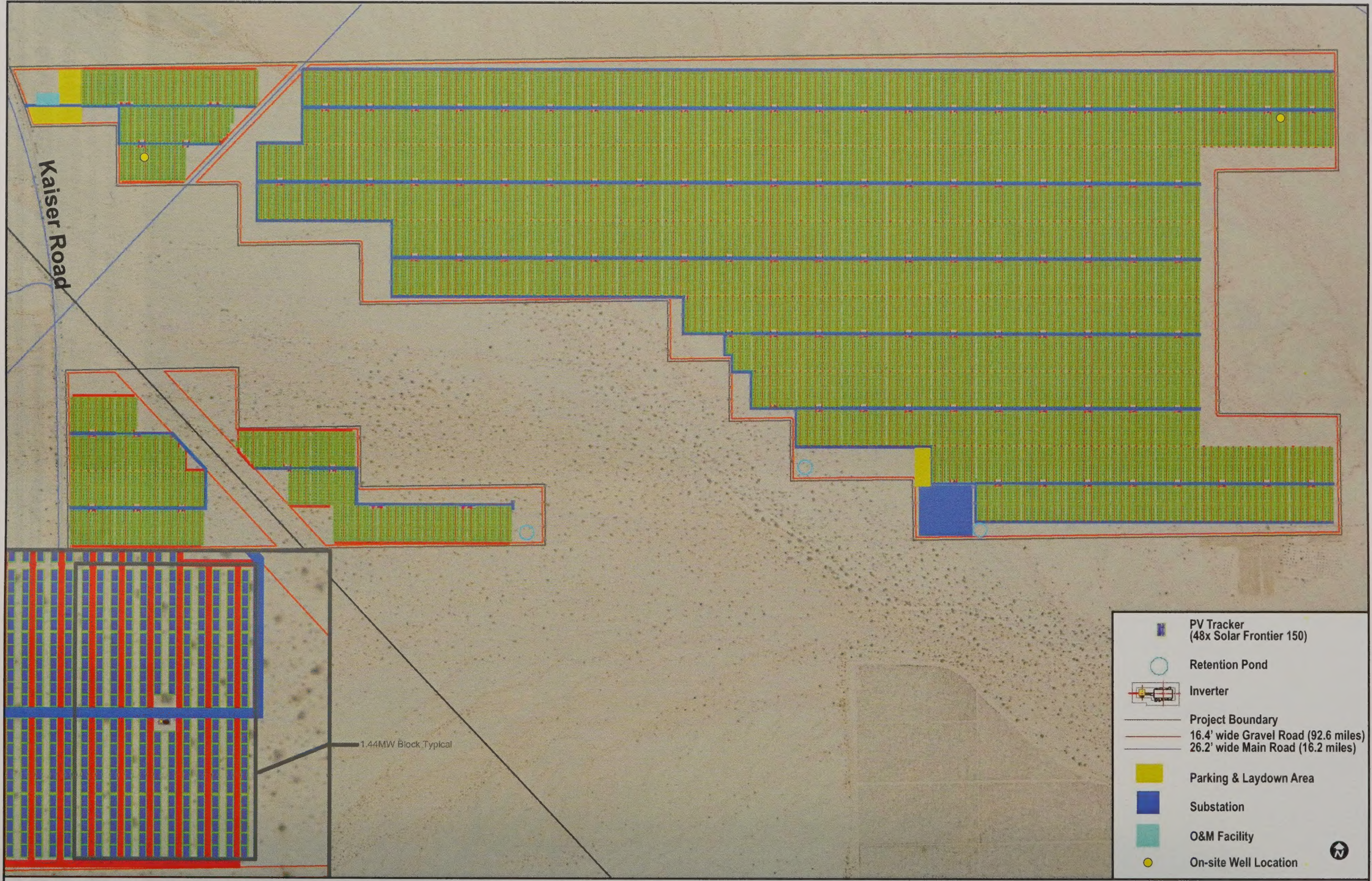

Joshua Tree National Park
Beekley Rd
Loma Verde Rd
Desert Lily Preserve ACEC
Kaiser Rd
177
Chuckwalla Valley Raceway
Lake Tamarisk
Desert Center
Alligator Rock ACEC
Alternative 4 - Proposed Solar Project
Gen-Tie Alternative E
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (2004)
0
0.5
1
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 2-16**

**Alternative E:
New Cross-Valley Alignment**

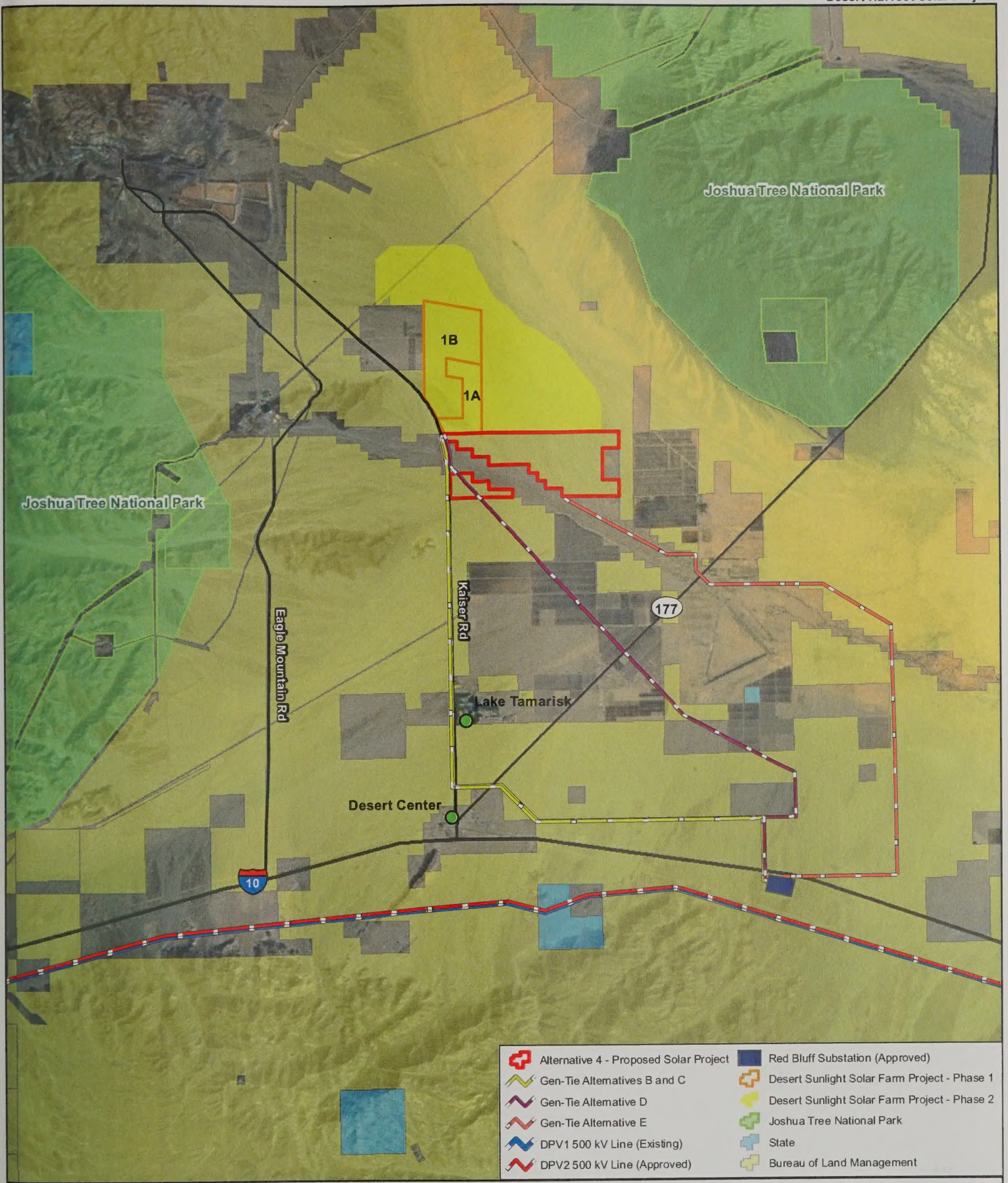


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

## Figure 2-17

## Alternative E: New Cross Valley Alignment Substation Location

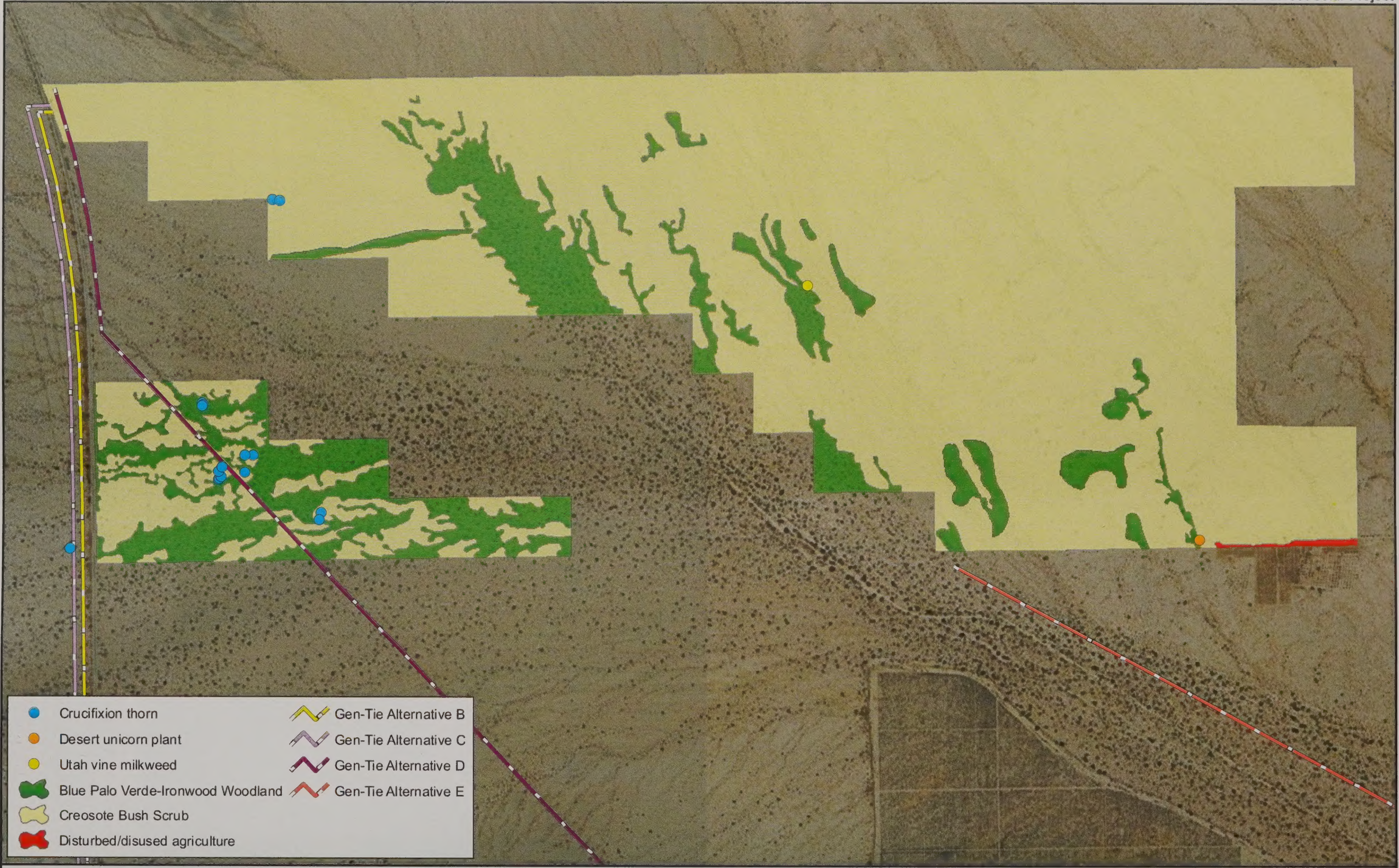

Joshua Tree National Park
Joshua Tree National Park
1B
1A
177
Kaiser Rd
Eagle Mountain Rd
Lake Tamarisk
Desert Center
10
Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
DPV1 500 kV Line (Existing)
DPV2 500 kV Line (Approved)
Red Bluff Substation (Approved)
Desert Sunlight Solar Farm Project - Phase 1
Desert Sunlight Solar Farm Project - Phase 2
Joshua Tree National Park
State
Bureau of Land Management
N
0
2
4
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

Figure 3.1-1

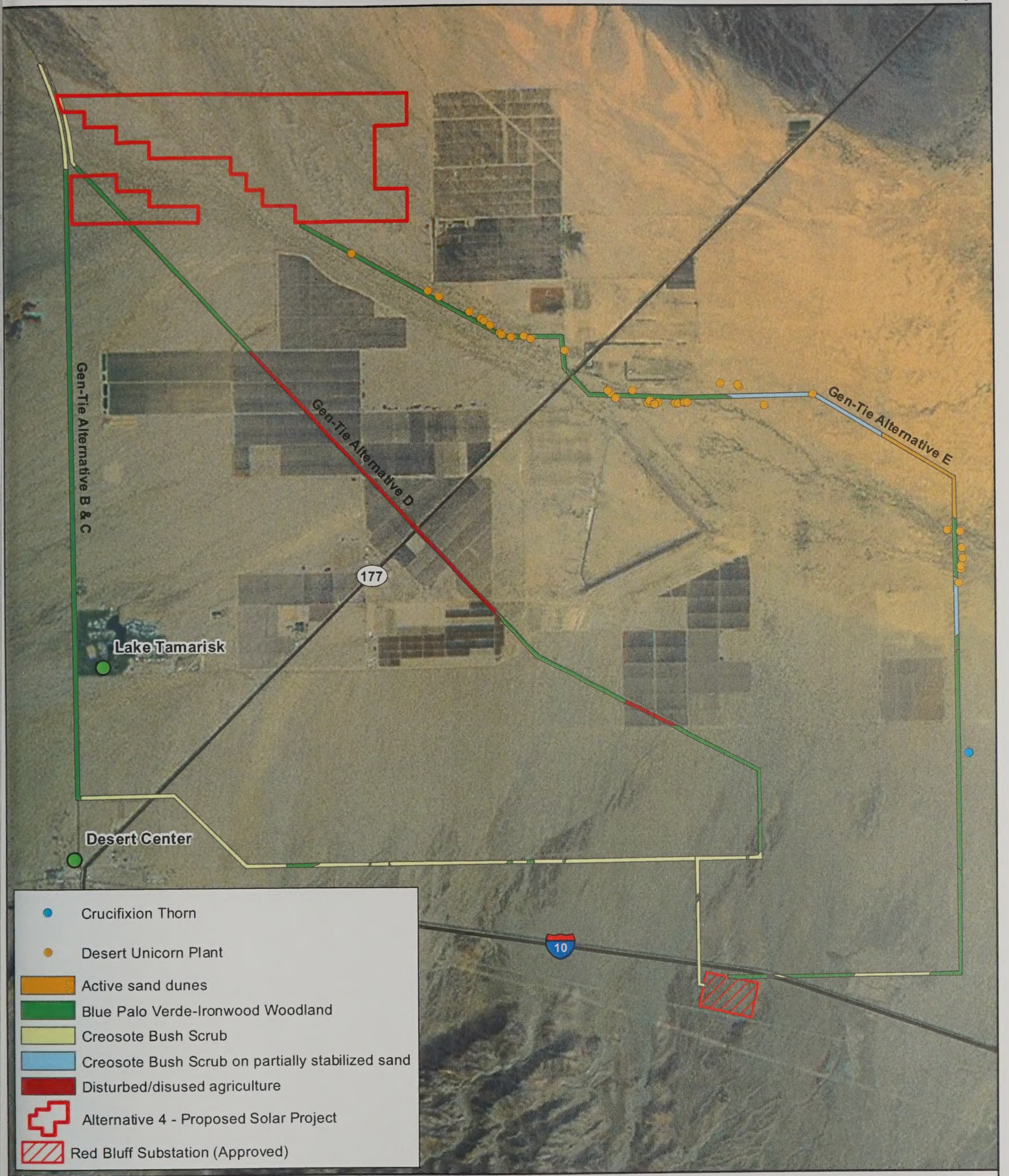
Project and Vicinity



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.3-1a**

**Vegetation DHSP Site**


Gen-Tie Alternative B & C
Gen-Tie Alternative D
Gen-Tie Alternative E
Lake Tamarisk
Desert Center
177
10
● Crucifixion Thorn
● Desert Unicorn Plant
🟧 Active sand dunes
🟩 Blue Palo Verde-Ironwood Woodland
🟨 Creosote Bush Scrub
🟦 Creosote Bush Scrub on partially stabilized sand
🟥 Disturbed/disused agriculture
Alternative 4 - Proposed Solar Project
▨ Red Bluff Substation (Approved)

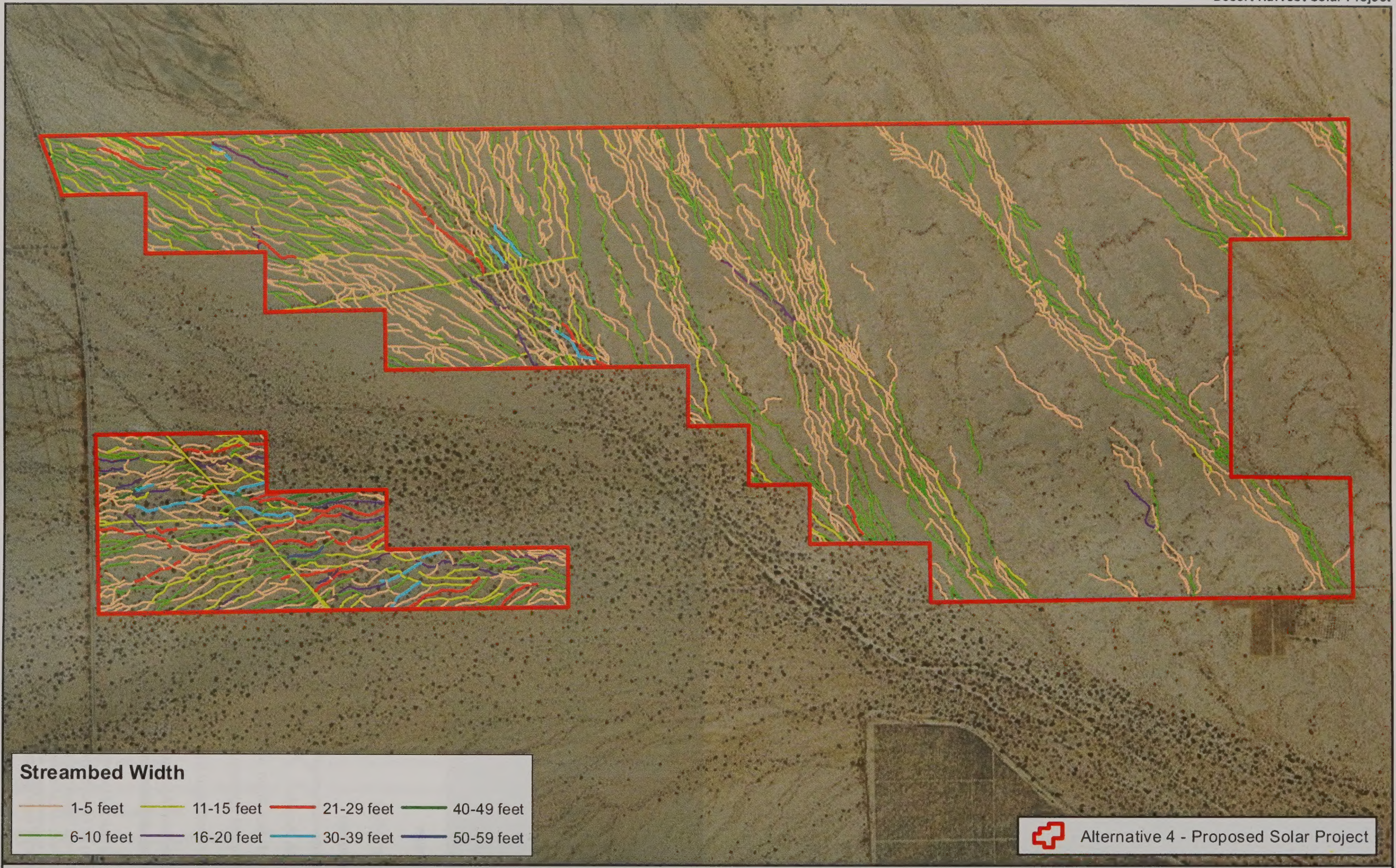
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

0 0.5 1 Miles

## Figure 3.3-1b

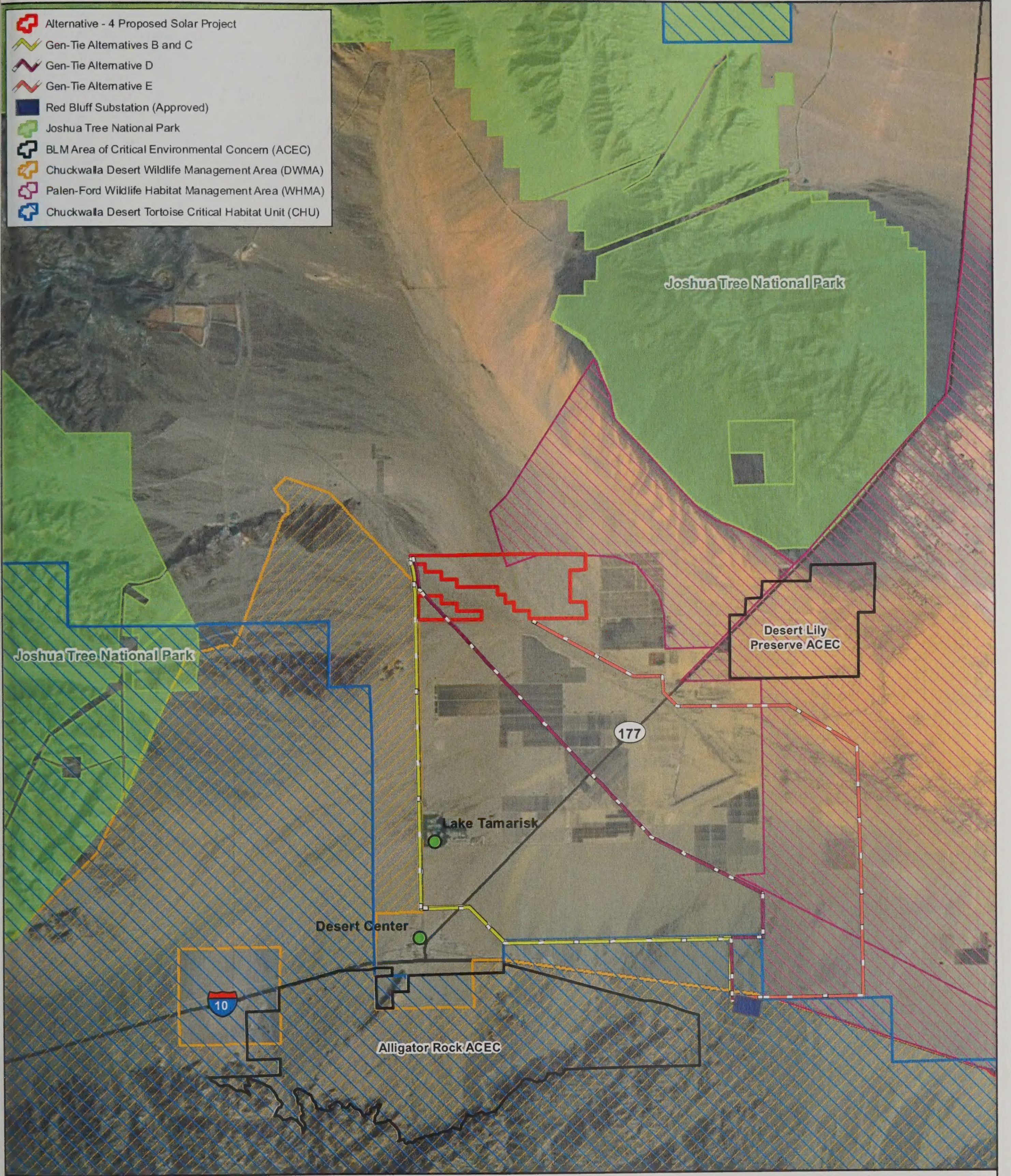
## Vegetation
## Gen-Tie Line Alternatives



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.3-2**

**CDFG Jurisdictional Streambeds**
**DHSP Site**


Alternative - 4 Proposed Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Red Bluff Substation (Approved)
Joshua Tree National Park
BLM Area of Critical Environmental Concern (ACEC)
Chuckwalla Desert Wildlife Management Area (DWMA)
Palen-Ford Wildlife Habitat Management Area (WHMA)
Chuckwalla Desert Tortoise Critical Habitat Unit (CHU)
Joshua Tree National Park
Joshua Tree National Park
Desert Lily Preserve ACEC
177
Lake Tamarisk
Desert Center
10
Alligator Rock ACEC

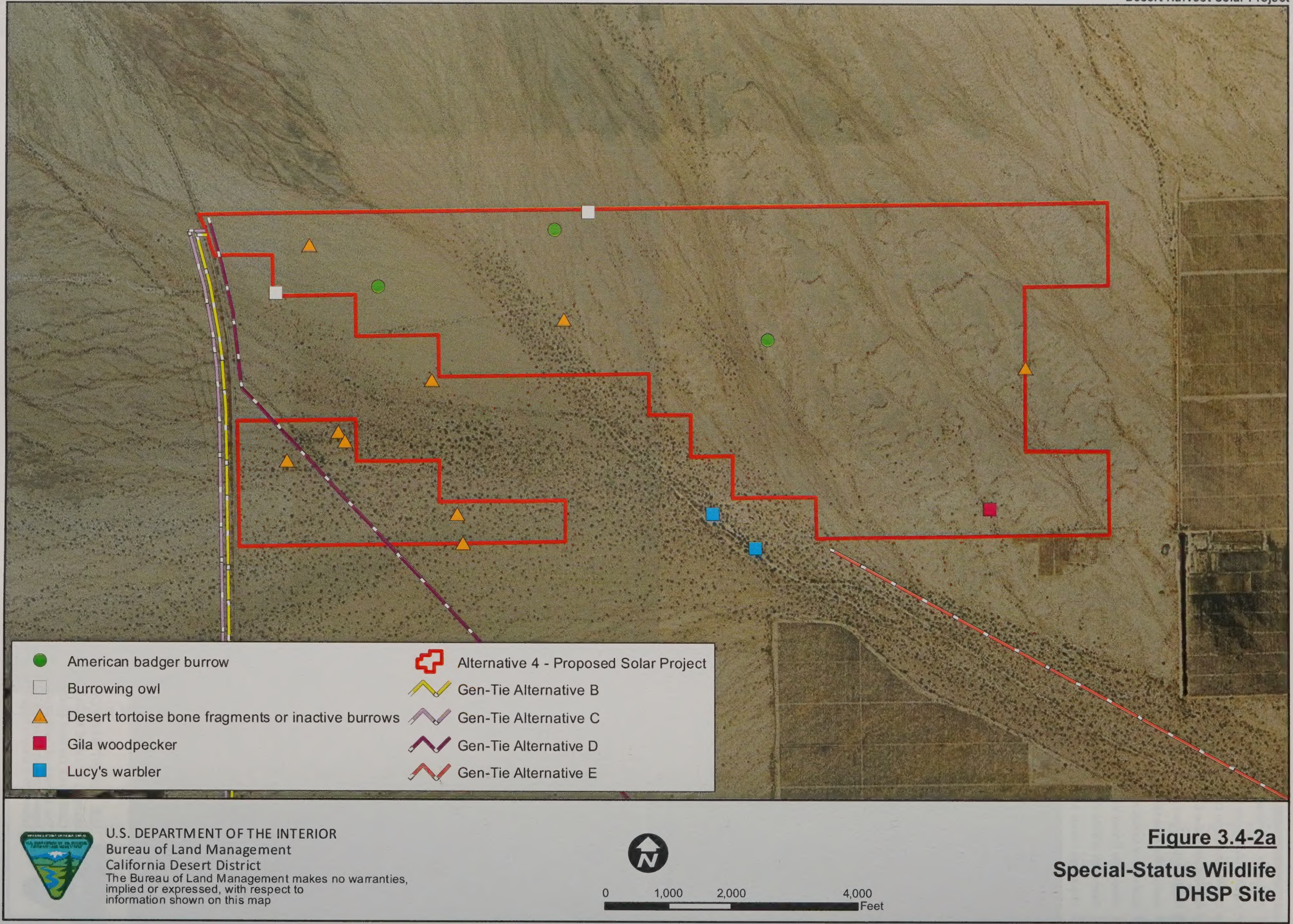
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

0 1 2 Miles

**Figure 3.4-1**

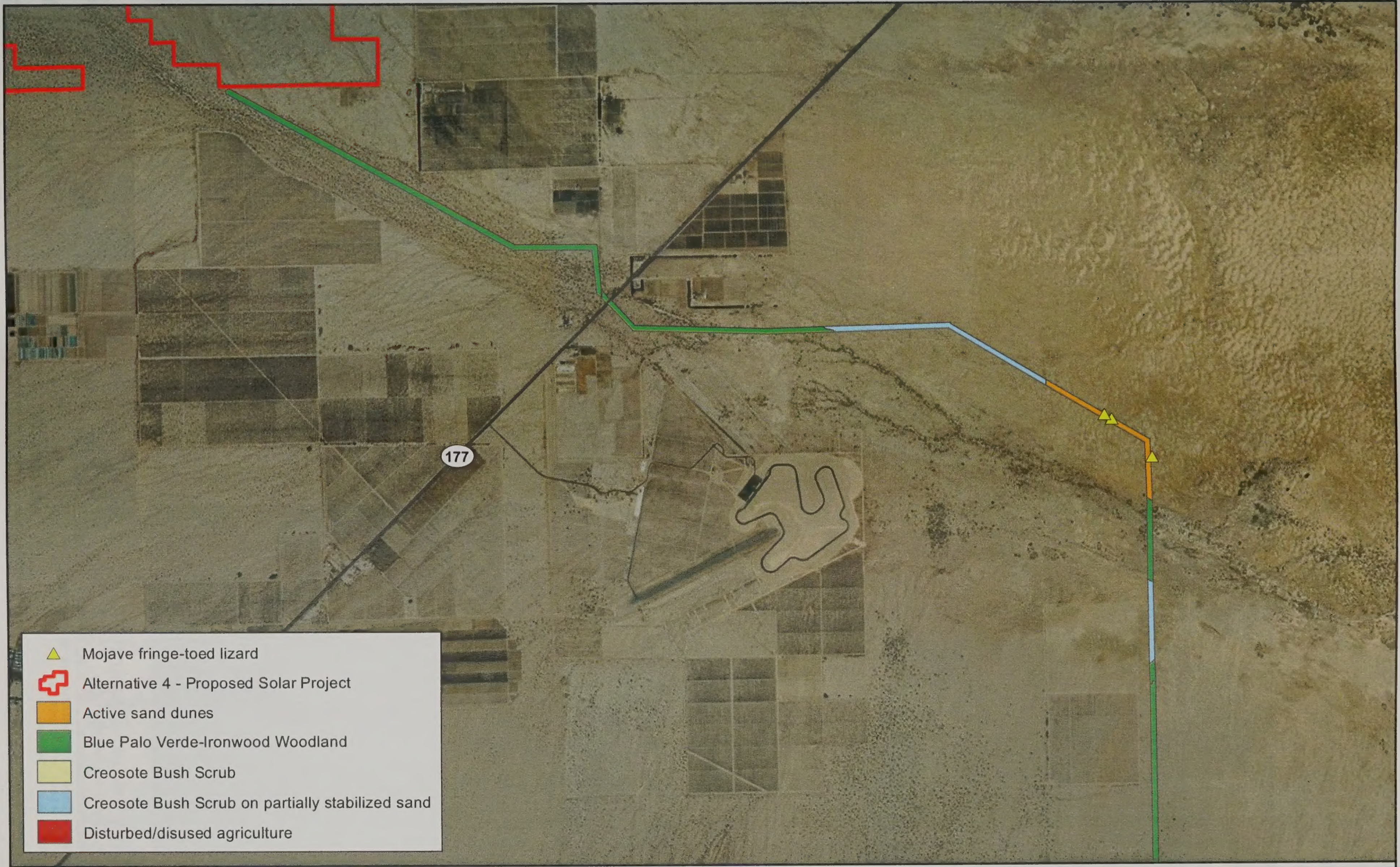
**Wildlife Management Areas**



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.4-2a**

**Special-Status Wildlife DHSP Site**


177
▲ Mojave fringe-toed lizard
🟥 Alternative 4 - Proposed Solar Project
🟧 Active sand dunes
🟩 Blue Palo Verde-Ironwood Woodland
🟨 Creosote Bush Scrub
🟦 Creosote Bush Scrub on partially stabilized sand
🟥 Disturbed/disused agriculture

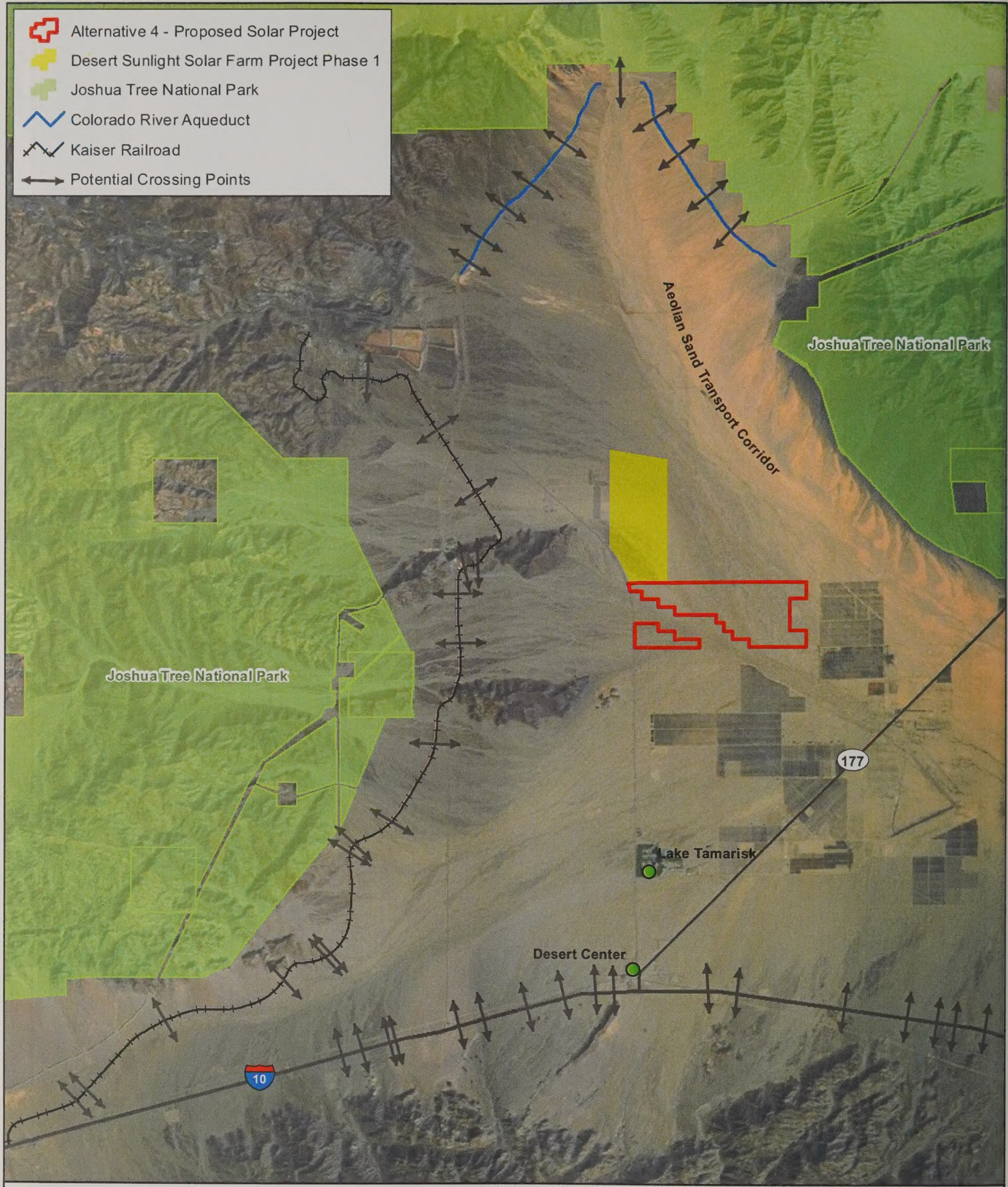
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

0 2,000 4,000 8,000 Feet

**Figure 3.4-2b**

**Special-Status Wildlife Gen-Tie Alternative E**

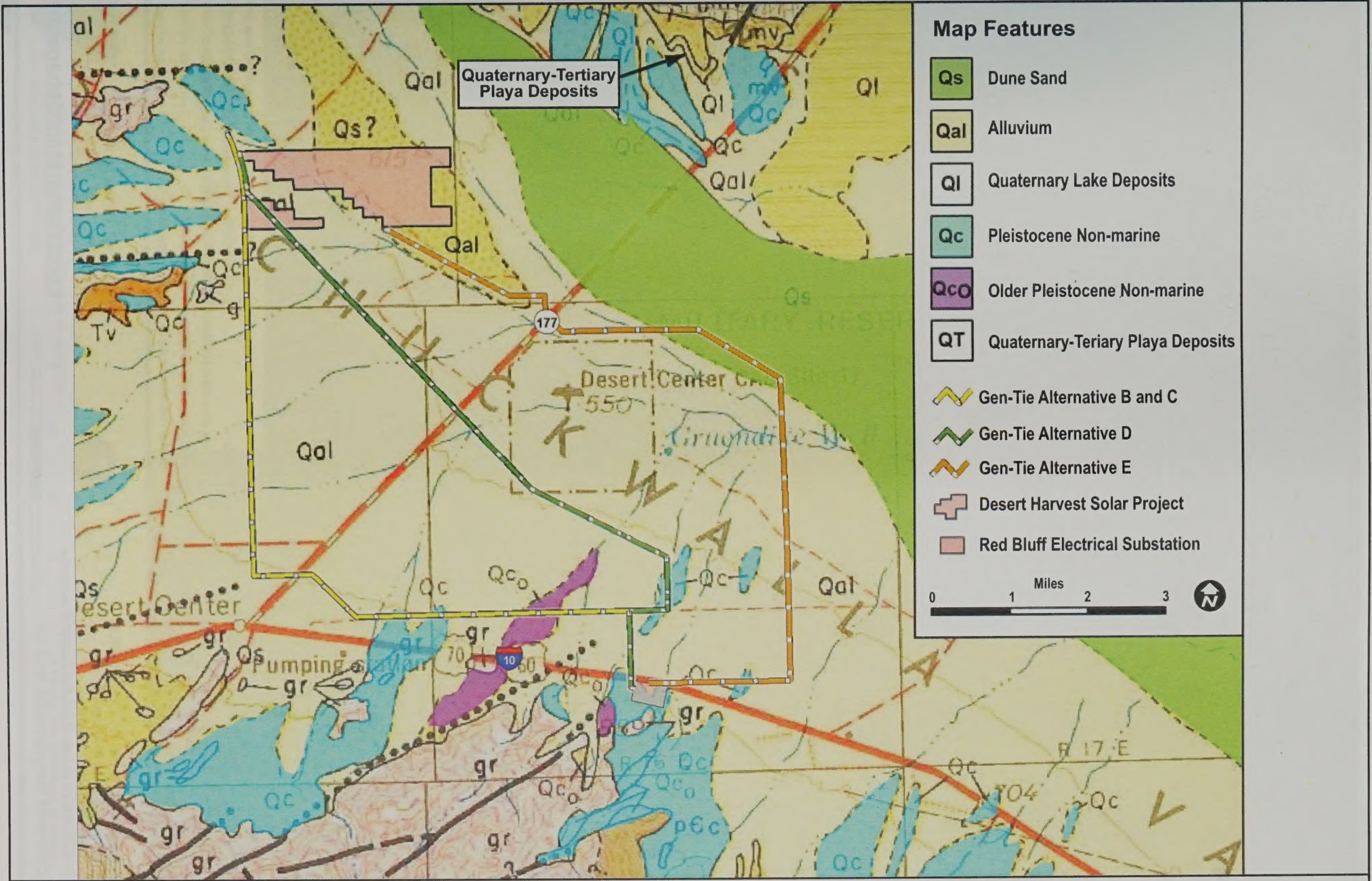

Alternative 4 - Proposed Solar Project
Desert Sunlight Solar Farm Project Phase 1
Joshua Tree National Park
Colorado River Aqueduct
Kaiser Railroad
Potential Crossing Points
Aeolian Sand Transport Corridor
Joshua Tree National Park
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10
0
1
2
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure 3.4-3

Wildlife Habitat Connectivity


Quaternary-Tertiary Playa Deposits
Qal
Qs?
Ql
Qc
Qco
Qs
gr
Tv
mv
Qal
177
Desert Center
550
Desert Center
Pumping
10
70
pЄc
R 17 E
704
Map Features
Qs Dune Sand
Qal Alluvium
Ql Quaternary Lake Deposits
Qc Pleistocene Non-marine
Qco Older Pleistocene Non-marine
QT Quaternary-Teriary Playa Deposits
Gen-Tie Alternative B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Desert Harvest Solar Project
Red Bluff Electrical Substation
Miles
0
1
2
3
N

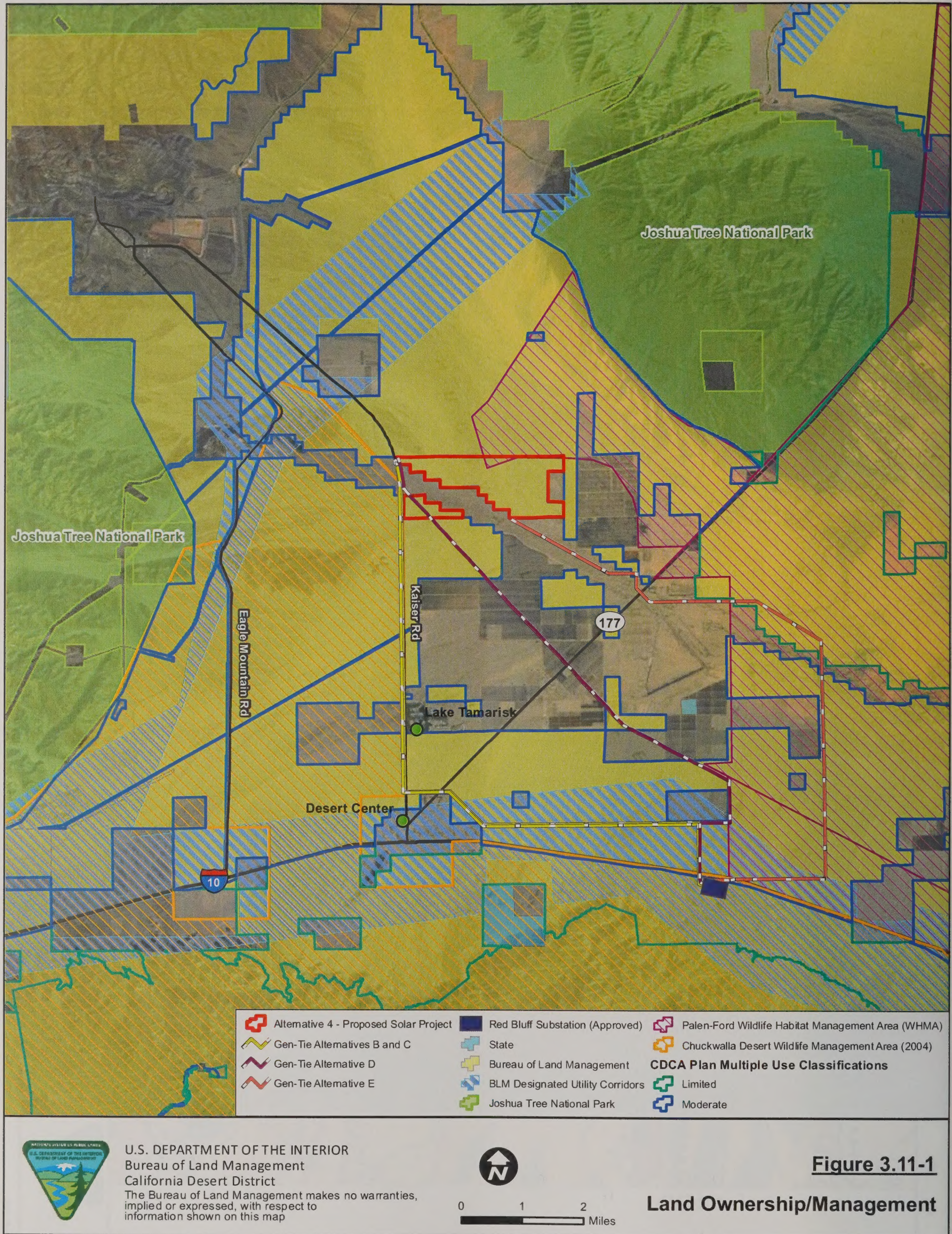
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

Source: Jennings, 1967.

Figure 3.7-1

Geology of Project Area and Quaternary-Tertiary Playa Deposits

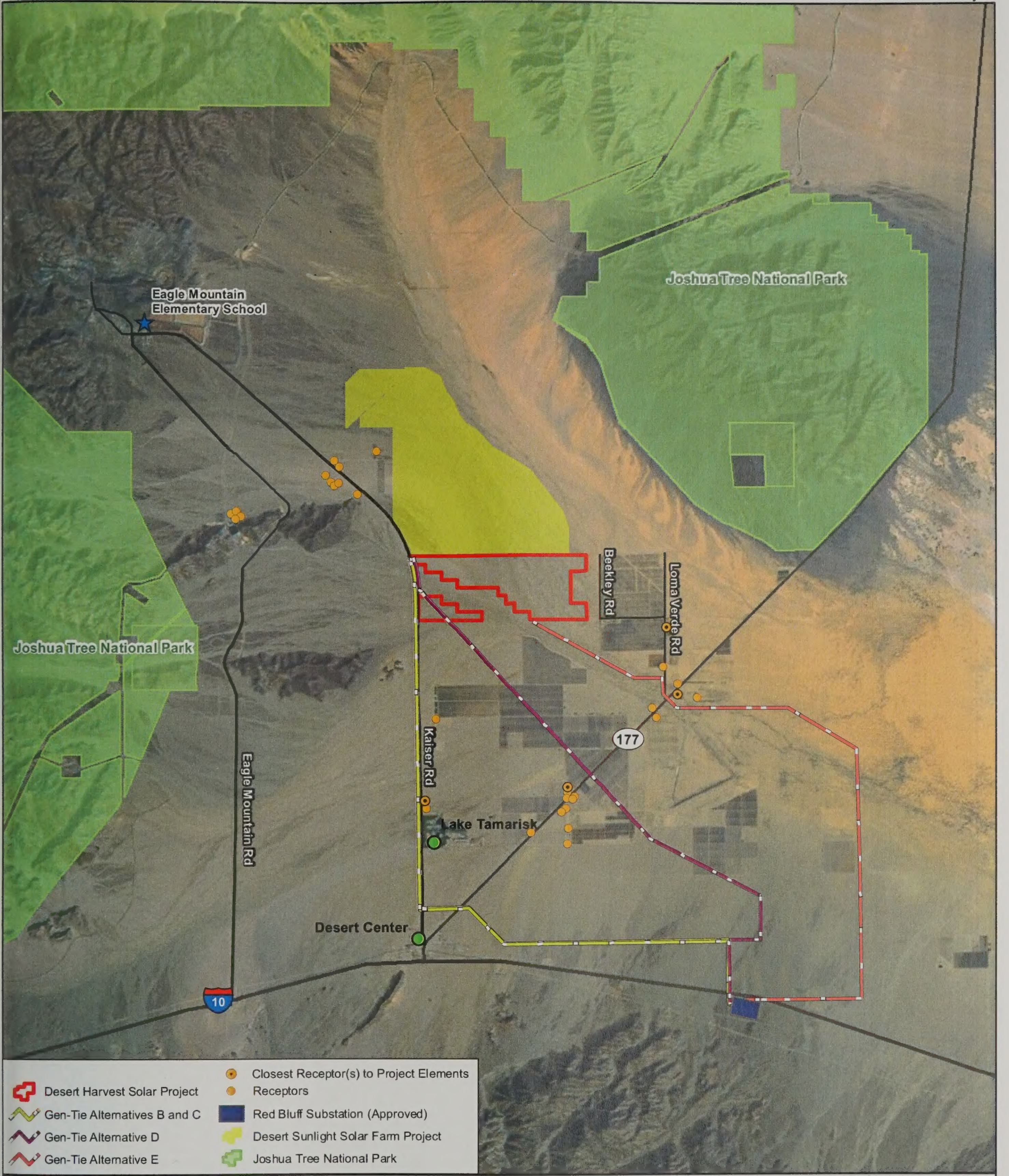

Joshua Tree National Park
Joshua Tree National Park
Eagle Mountain Rd
Kaiser Rd
Lake Tamarisk
Desert Center
177
10
Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Red Bluff Substation (Approved)
State
Bureau of Land Management
BLM Designated Utility Corridors
Joshua Tree National Park
Palen-Ford Wildlife Habitat Management Area (WHMA)
Chuckwalla Desert Wildlife Management Area (2004)
CDCA Plan Multiple Use Classifications
Limited
Moderate
N
0
1
2
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.11-1**

**Land Ownership/Management**

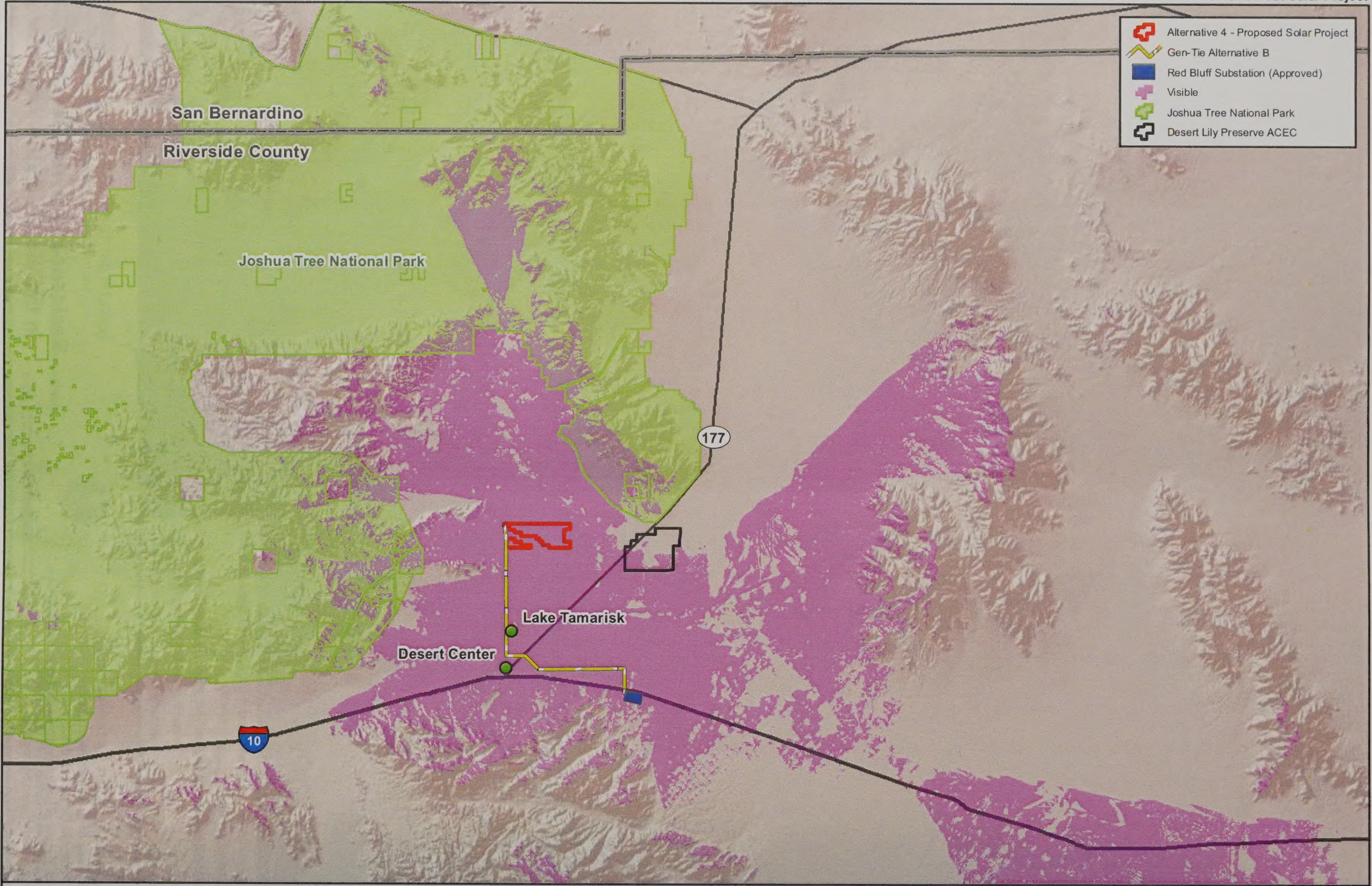

Joshua Tree National Park
Eagle Mountain Elementary School
Joshua Tree National Park
Beekley Rd
Loma Verde Rd
177
Kaiser Rd
Eagle Mountain Rd
Lake Tamarisk
Desert Center
10
Desert Harvest Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Closest Receptor(s) to Project Elements
Receptors
Red Bluff Substation (Approved)
Desert Sunlight Solar Farm Project
Joshua Tree National Park
N
0
1
2
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.12-1**

**Residences and Residential Areas in the Vicinity of the Project Area**

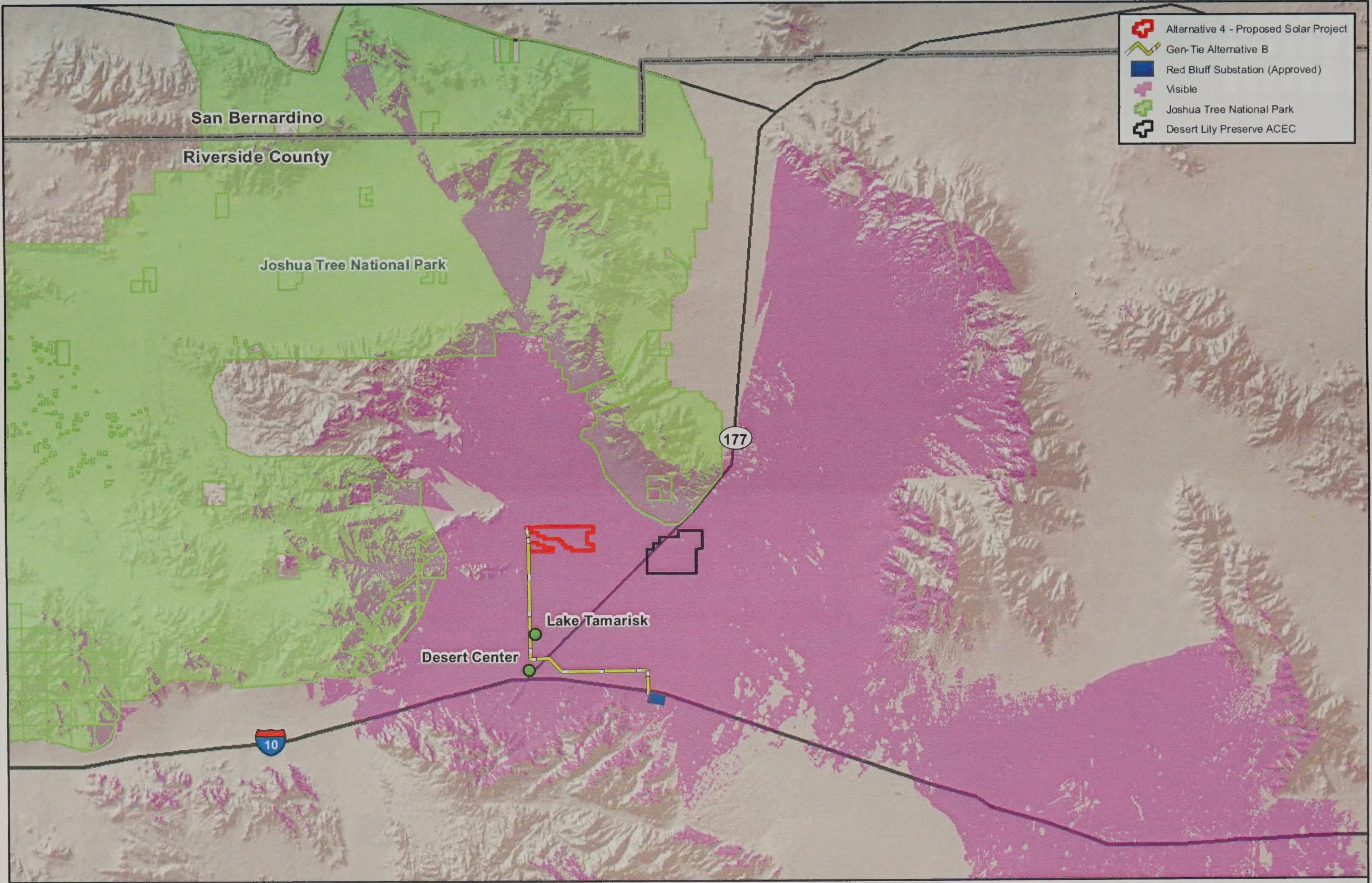

Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B
Red Bluff Substation (Approved)
Visible
Joshua Tree National Park
Desert Lily Preserve ACEC
San Bernardino
Riverside County
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10
0
5
10
Miles
N

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure 3.19-1a

## Project Viewshed: Low Profile Tracking Panels


Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B
Red Bluff Substation (Approved)
Visible
Joshua Tree National Park
Desert Lily Preserve ACEC
San Bernardino
Riverside County
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10

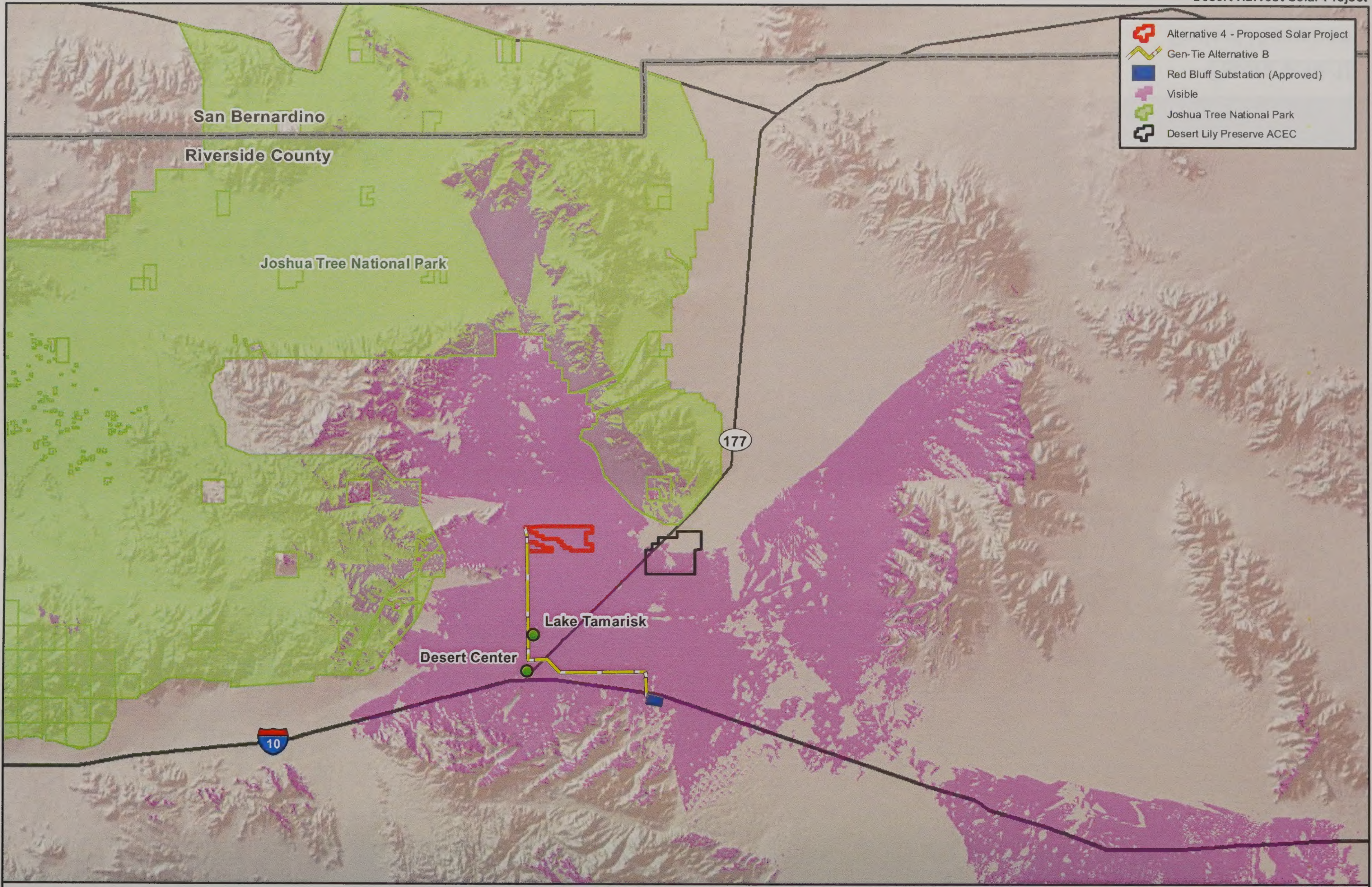
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

0 5 10 Miles

Figure 3.19-1b

Project Viewshed: Transmission Towers

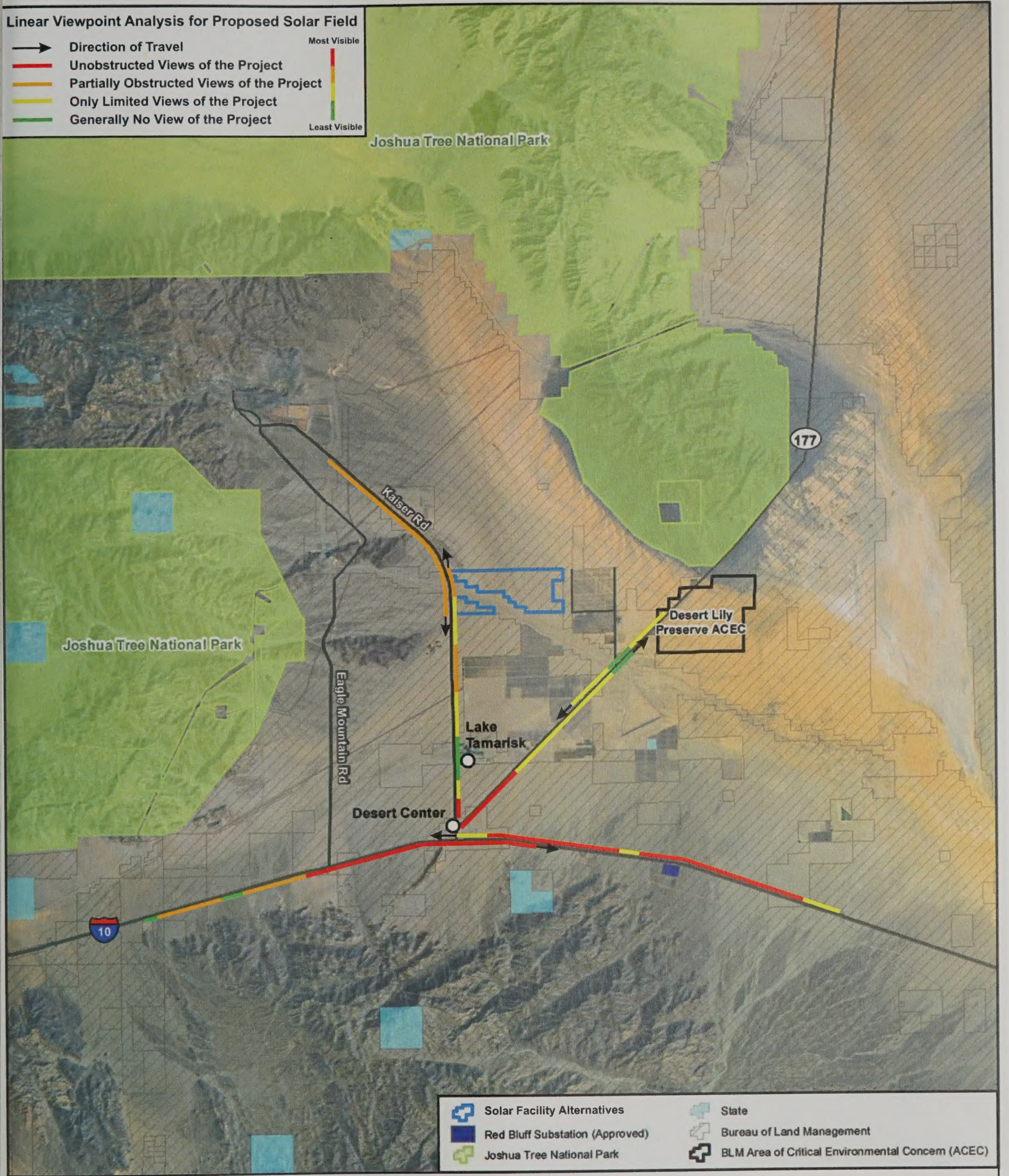

Alternative 4 - Proposed Solar Project
Gen-Tie Alternative B
Red Bluff Substation (Approved)
Visible
Joshua Tree National Park
Desert Lily Preserve ACEC
San Bernardino
Riverside County
Joshua Tree National Park
177
Lake Tamarisk
Desert Center
10

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

## Figure 3.19-1c

## Project Viewshed: High Profile Tracking Panels


Linear Viewpoint Analysis for Proposed Solar Field
Direction of Travel
Unobstructed Views of the Project
Partially Obstructed Views of the Project
Only Limited Views of the Project
Generally No View of the Project
Most Visible
Least Visible
Joshua Tree National Park
Joshua Tree National Park
177
Kaiser Rd
Eagle Mountain Rd
Desert Lily Preserve ACEC
Lake Tamarisk
Desert Center
10
Solar Facility Alternatives
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)

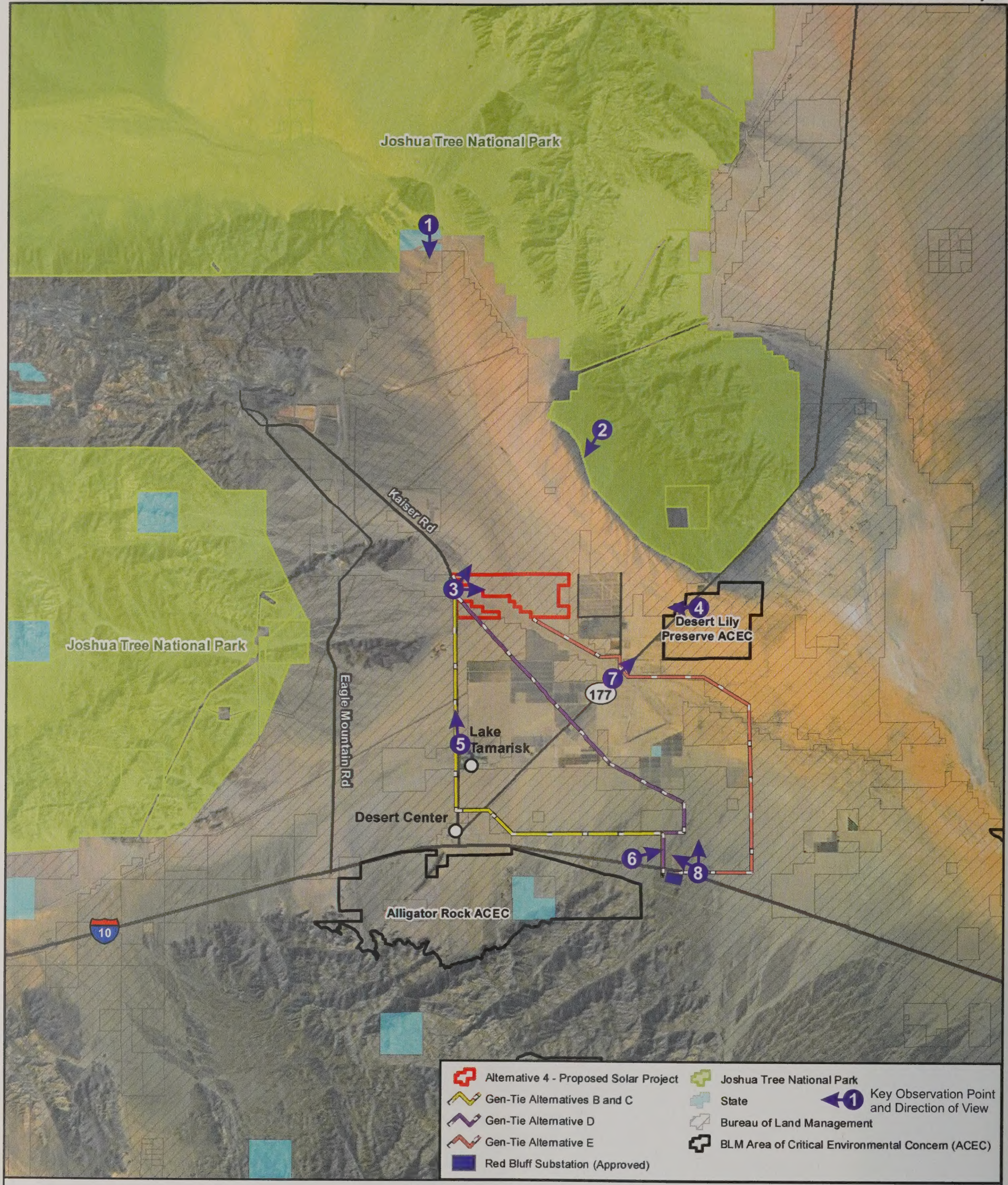
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

0 2.5 5 Miles

## Figure 3.19-2

## Linear Viewpoint Analysis for DHSP

April 2012

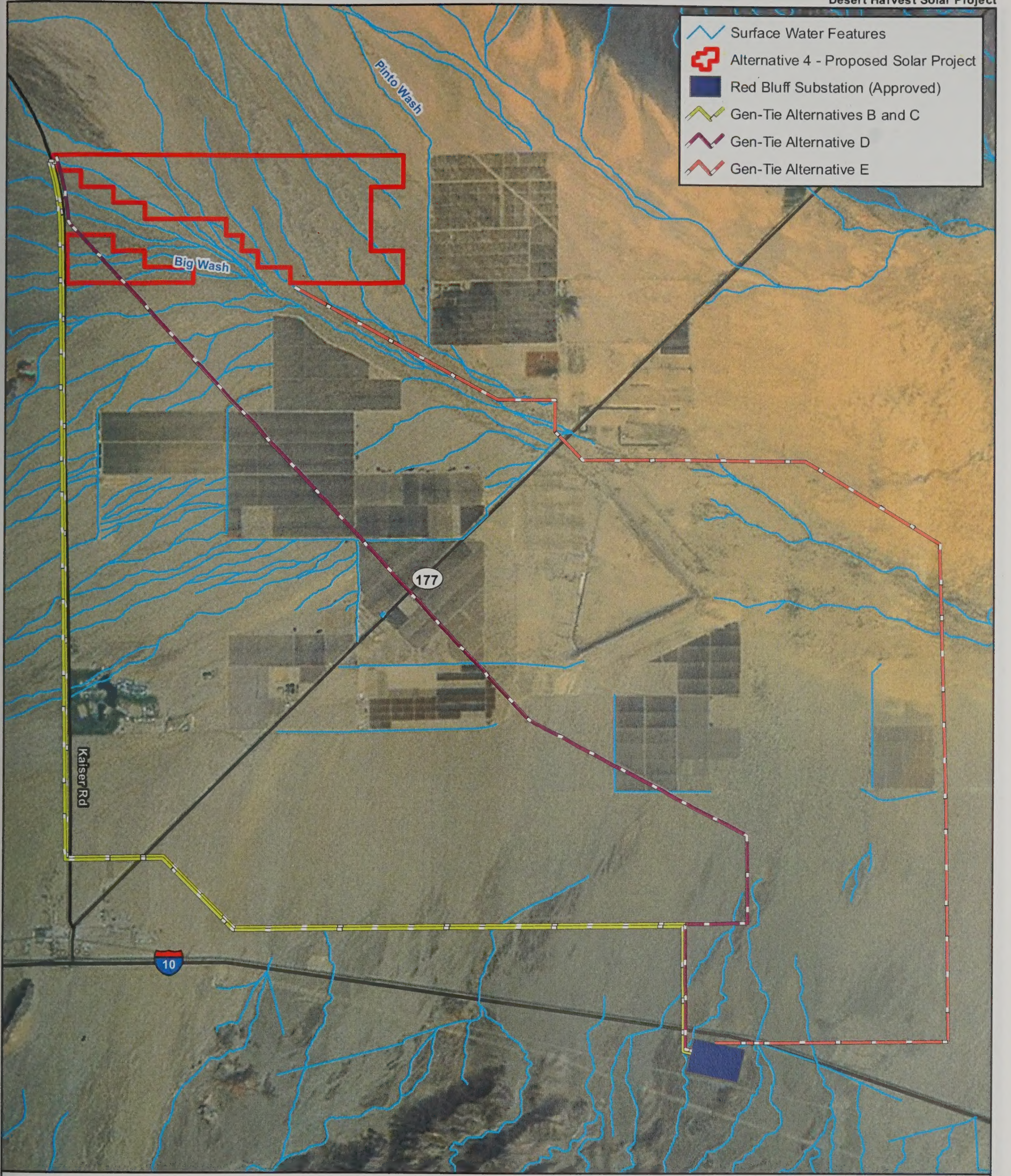

Joshua Tree National Park
1
2
Kaiser Rd
Joshua Tree National Park
3
4
Desert Lily Preserve ACEC
7
177
Eagle Mountain Rd
Lake Tamarisk
5
Desert Center
6
8
Alligator Rock ACEC
10
🟥 Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
Red Bluff Substation (Approved)
Joshua Tree National Park
State
Bureau of Land Management
BLM Area of Critical Environmental Concern (ACEC)
Key Observation Point and Direction of View
N
0
2.5
5
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties, implied or expressed, with respect to information shown on this map.

## Figure 3.19-3

## Key Observation Point Locations

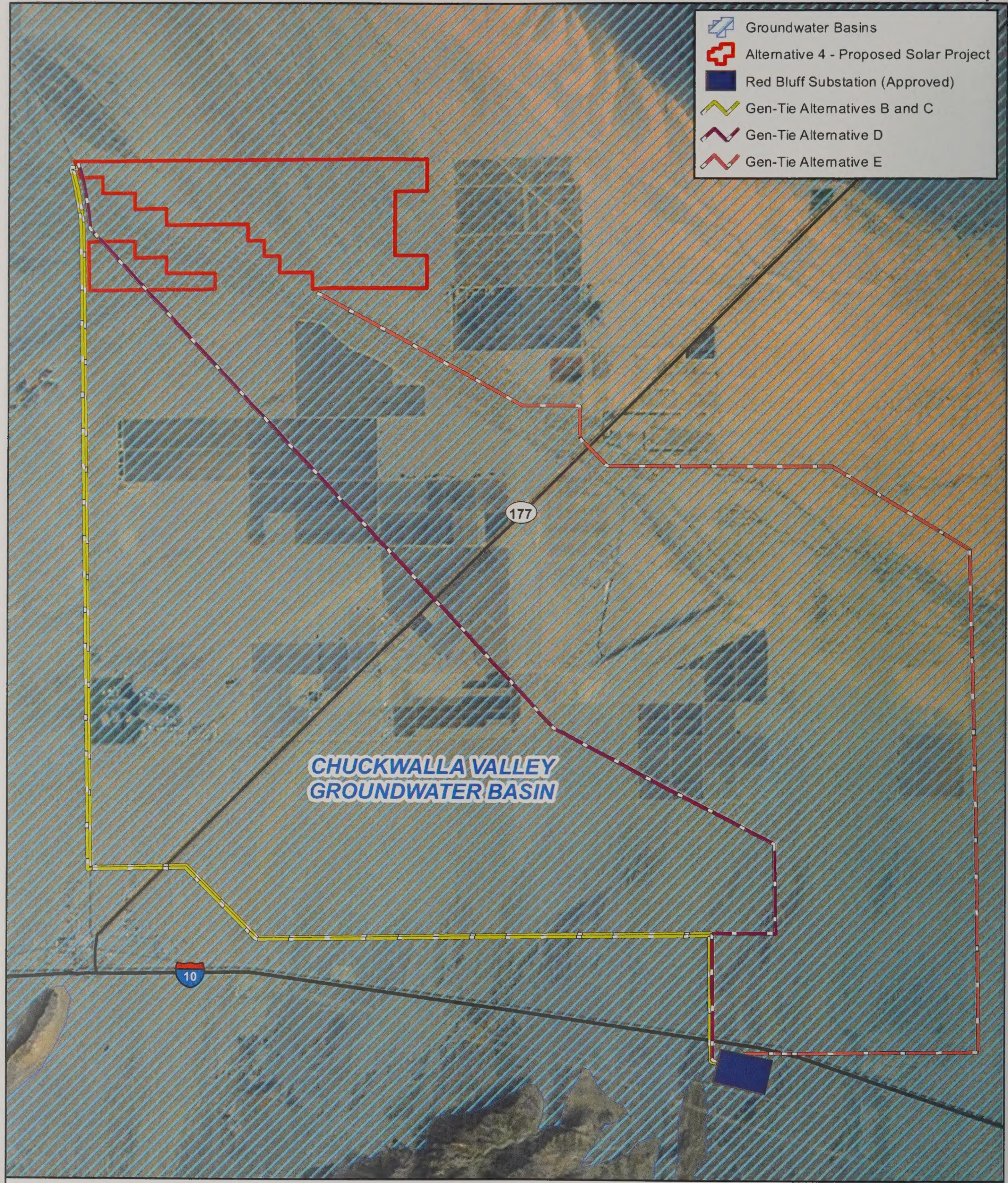


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.20-1**

**Surface Water Features**

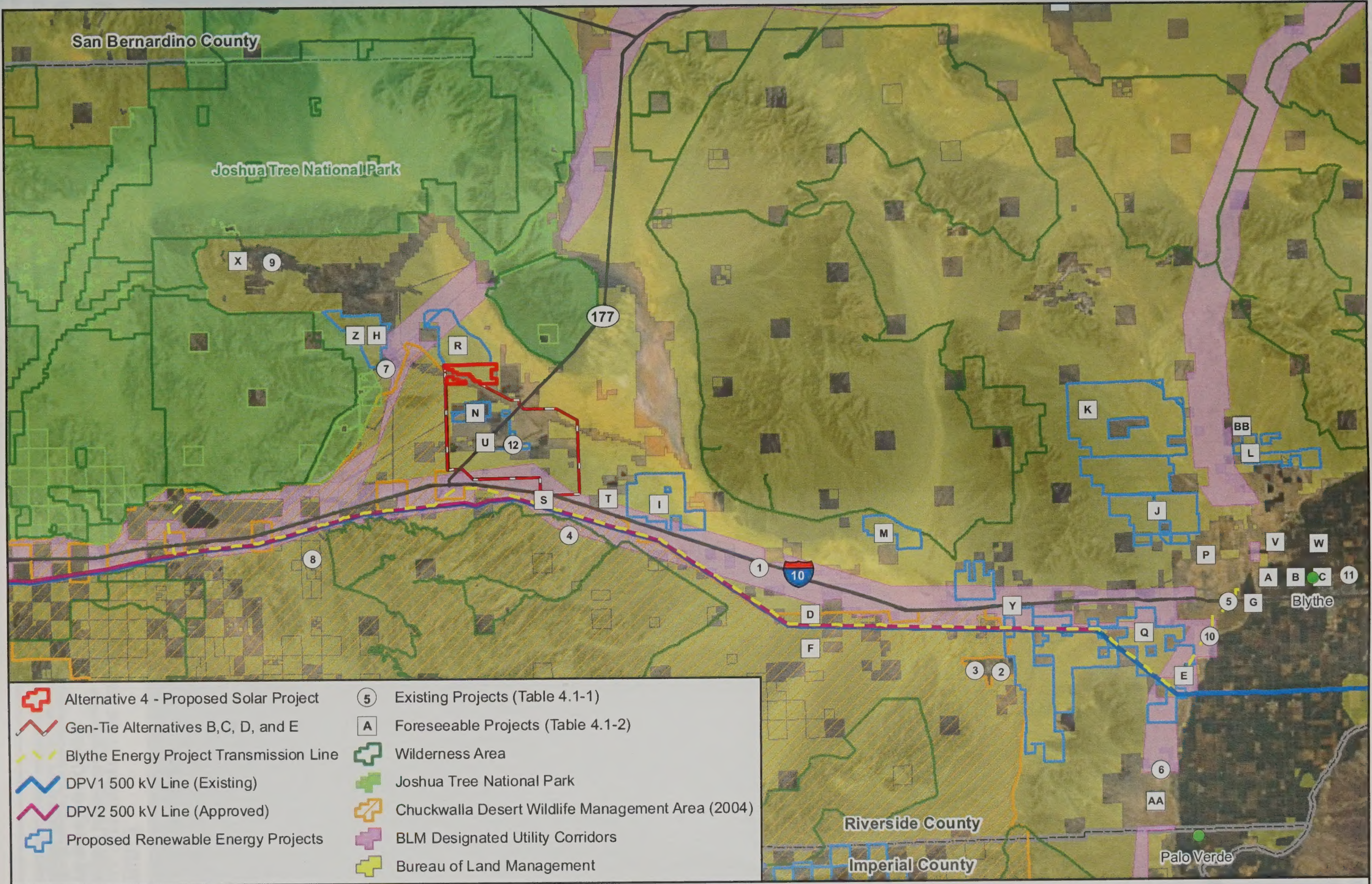

Groundwater Basins
Alternative 4 - Proposed Solar Project
Red Bluff Substation (Approved)
Gen-Tie Alternatives B and C
Gen-Tie Alternative D
Gen-Tie Alternative E
177
CHUCKWALLA VALLEY GROUNDWATER BASIN
10
0
1
2
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 3.20-2**

**Groundwater in the Project Area**

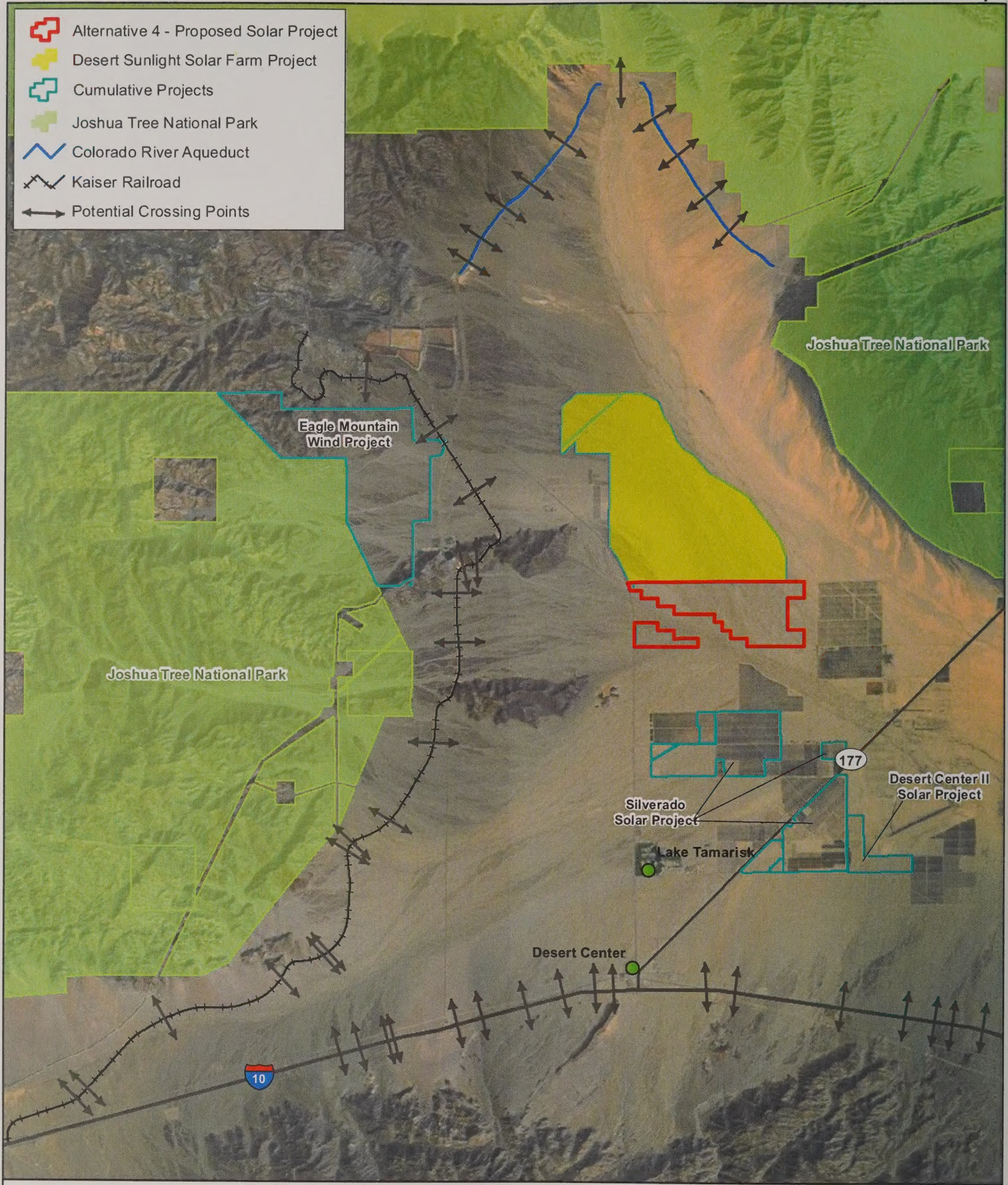

San Bernardino County
Joshua Tree National Park
X
9
Z
H
7
R
177
N
U
12
S
T
I
4
8
1
10
M
K
BB
L
J
P
V
W
A
B
C
11
5
G
Blythe
Y
D
F
Q
10
3
2
E
6
AA
Riverside County
Imperial County
Palo Verde
🟥 Alternative 4 - Proposed Solar Project
Gen-Tie Alternatives B,C, D, and E
Blythe Energy Project Transmission Line
DPV1 500 kV Line (Existing)
DPV2 500 kV Line (Approved)
Proposed Renewable Energy Projects
⑤ Existing Projects (Table 4.1-1)
A Foreseeable Projects (Table 4.1-2)
Wilderness Area
Joshua Tree National Park
Chuckwalla Desert Wildlife Management Area (2004)
BLM Designated Utility Corridors
Bureau of Land Management
N
0
3.5
7
14
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 4.1-1**

**Cumulative Projects**

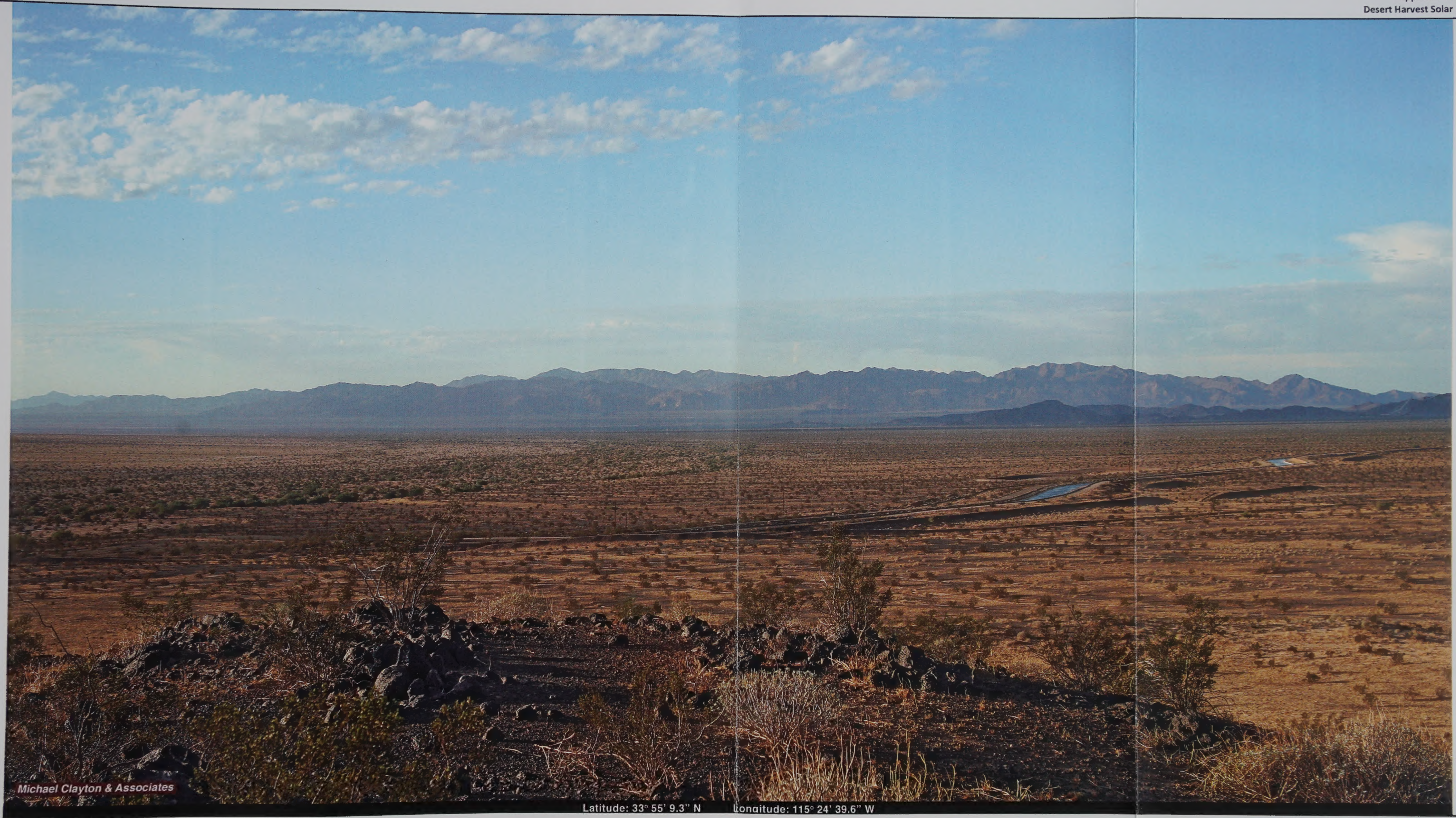

Alternative 4 - Proposed Solar Project
Desert Sunlight Solar Farm Project
Cumulative Projects
Joshua Tree National Park
Colorado River Aqueduct
Kaiser Railroad
Potential Crossing Points
Joshua Tree National Park
Eagle Mountain Wind Project
Joshua Tree National Park
177
Desert Center II Solar Project
Silverado Solar Project
Lake Tamarisk
Desert Center
10
0
1
2
Miles

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map

**Figure 4.4-1**

**Wildlife Habitat Connectivity Cumulative Scenario**


Michael Clayton & Associates
Latitude: 33° 55' 9.3" N Longitude: 115° 24' 39.6" W

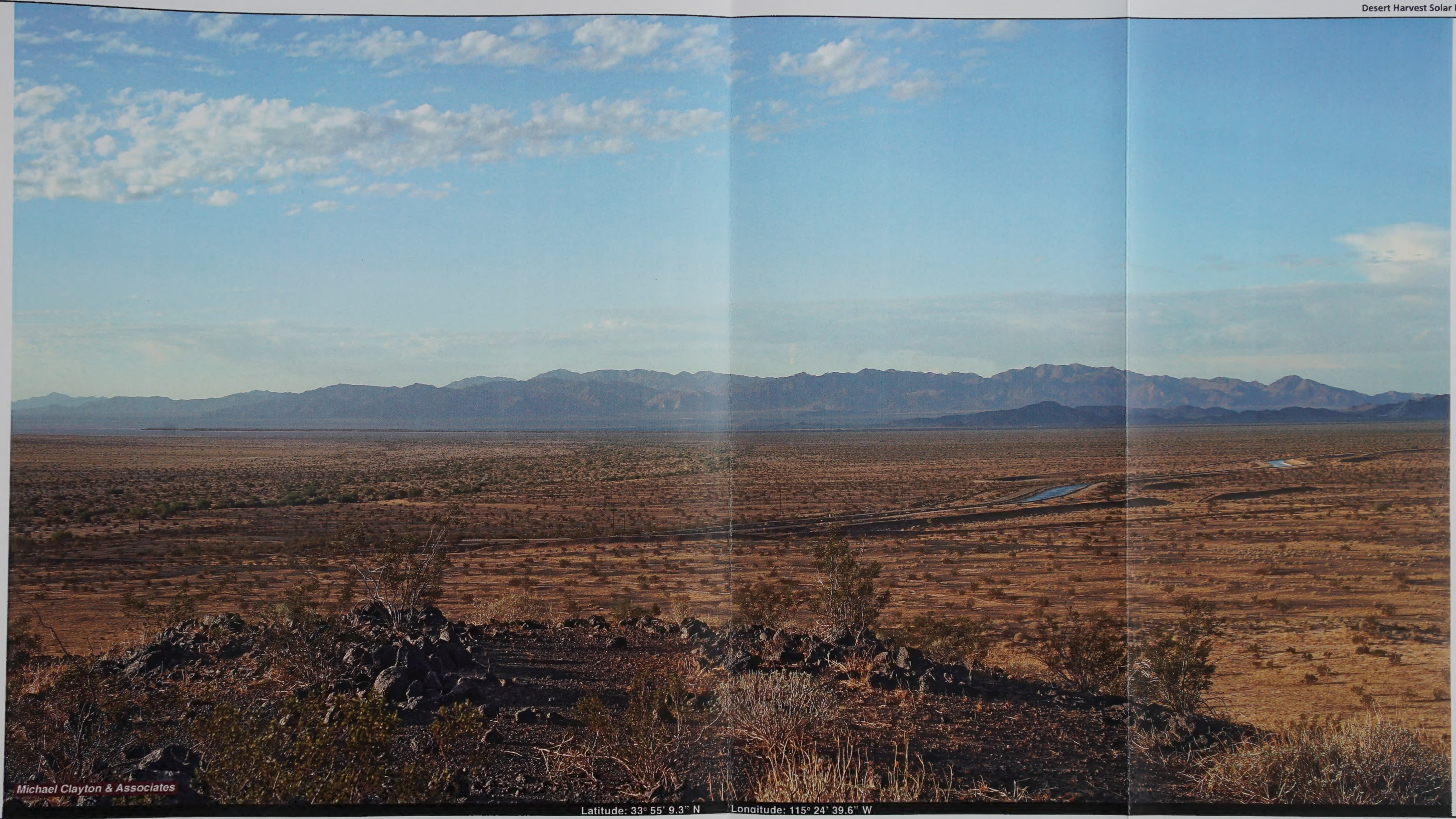
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents an **Existing View** of the **Proposed project area**, approximately eight miles to the south of this location, as viewed from Key Observation Point 1 in Joshua Tree Wilderness at the northeast end of the Eagle Mountains. This view to the south overlooks the open expanse that comprises the north end of Chuckwalla Valley, backdropped by the eastern extent of the Eagle Mountains (right side of image) and the Chuckwalla Mountains beyond. The Colorado River Aqueduct is visible in the foreground.

**Figure 4.19-1A**

**Key Observation Point 1**
**Joshua Tree Wilderness**
**Eagle Mountains**



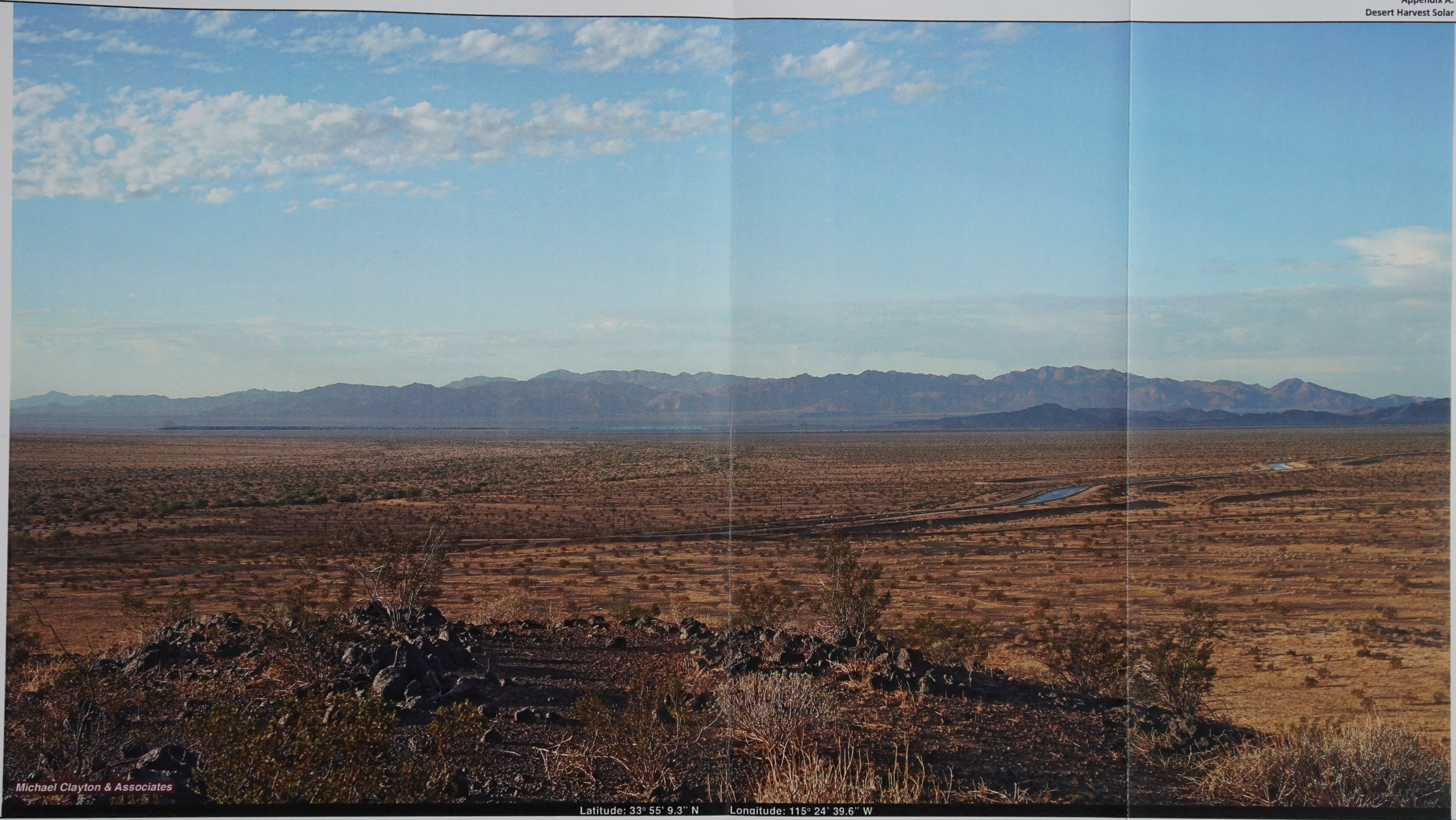
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Proposed project**, approximately eight miles to the south of this location, as viewed from Key Observation Point 1 in Joshua Tree Wilderness. The proposed solar facility is faintly visible as light-colored, horizontal features (two development areas with solar panels facing to the south, away from this viewpoint) in the left center of the image. The proposed gen-tie transmission line is barely discernible as a sequence of vertical features to the immediate right (west) of the solar farm.

**Figure 4.19-1B**

**Key Observation Point 1**
**Joshua Tree Wilderness**
**Eagle Mountains**



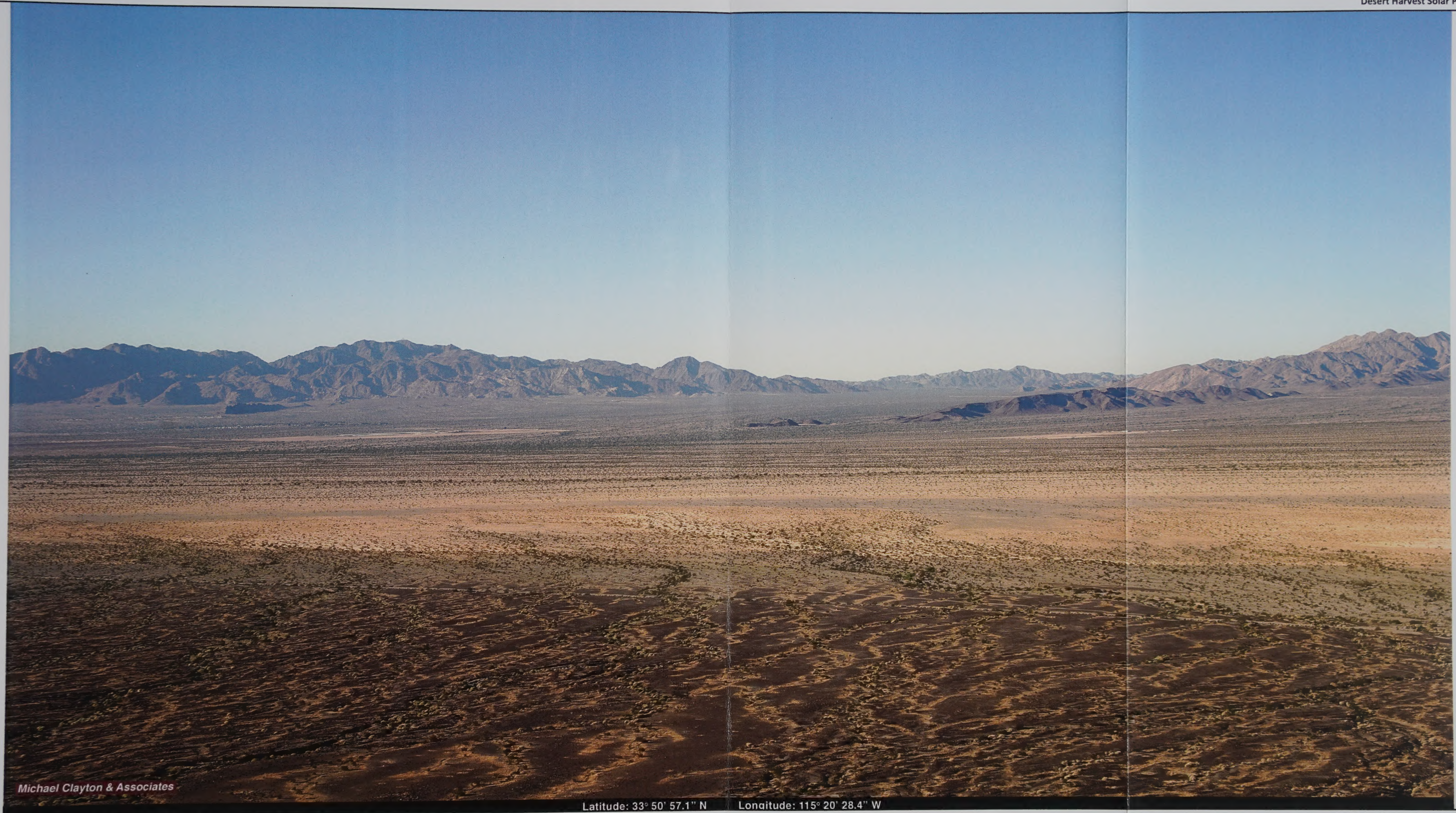
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of **Alternative 7** (high profile, single-axis tracking panels) facing east (left). The eastern (left) portion of the facility (horizontal, linear feature in left-center of the image) appears darker because the panel backs are visible in shadow. Further west (right), and with a changing view angle, the panels begin to exhibit a bluish hue as they begin to show reflected sky. The appearance of the solar panels will change depending on time of day, orientation of the tracking panels, and characteristics of the reflected sky.

**Figure 4.19-1C**

**Key Observation Point 1A**
**Joshua Tree Wilderness**
**Eagle Mountains**



Michael Clayton & Associates

Latitude: 33° 50' 57.1" N Longitude: 115° 20' 28.4" W

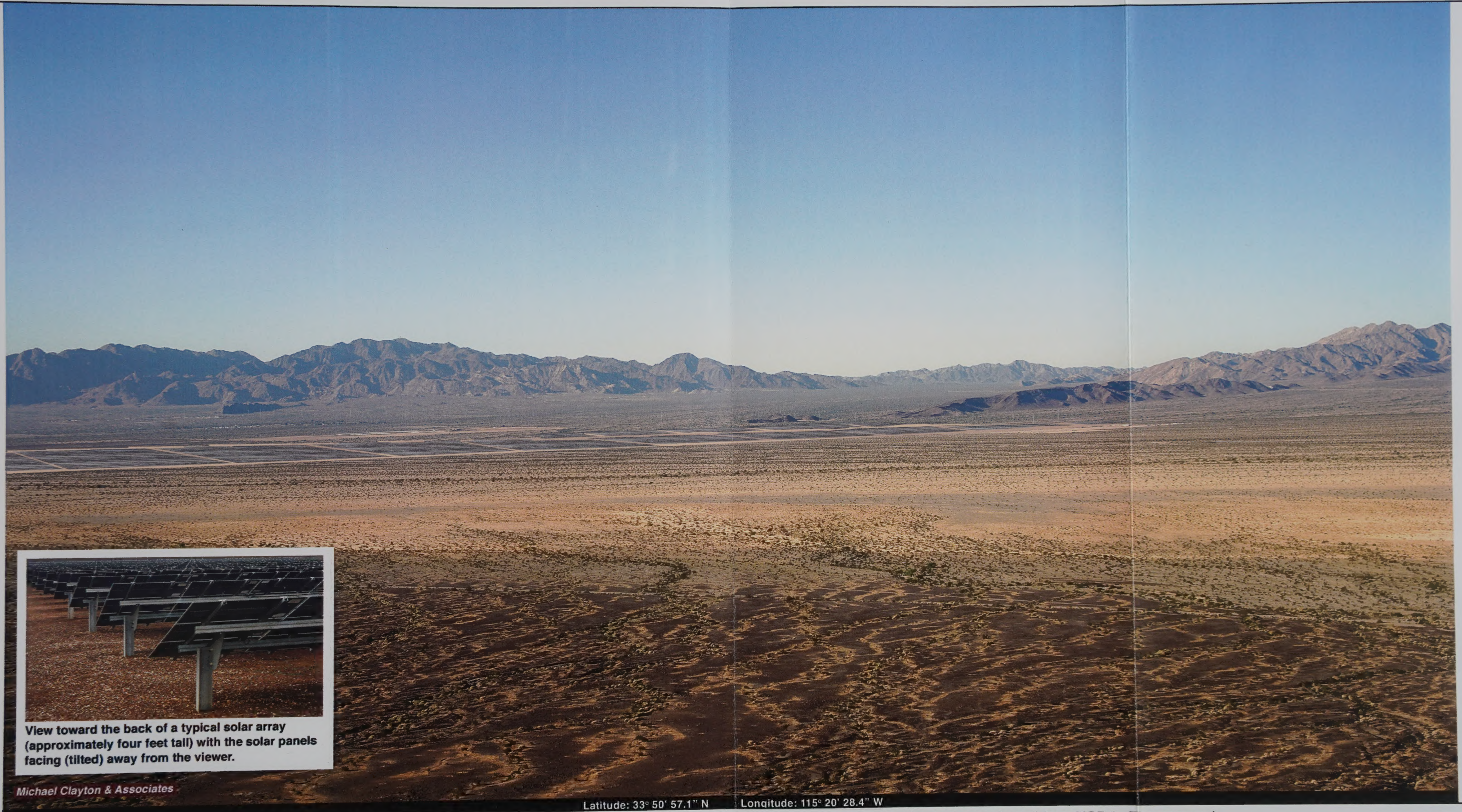
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Proposed project area** (approximately 3.5 miles to the southwest) from KOP 2 in Joshua Tree Wilderness along the western flank of the Coxcomb Mountains. This elevated vantagepoint overlooks the open expanse that comprises the north end of Chuckwalla Valley, backdropped by the eastern extent of the Eagle Mountains (right side of image) and the Chuckwalla Mountains to the south (center-left of image).

**Figure 4.19-2A**

**Key Observation Point 2**
**Joshua Tree Wilderness**
**Coxcomb Mountains**



View toward the back of a typical solar array (approximately four feet tall) with the solar panels facing (tilted) away from the viewer.

Michael Clayton & Associates

Latitude: 33° 50' 57.1" N Longitude: 115° 20' 28.4" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

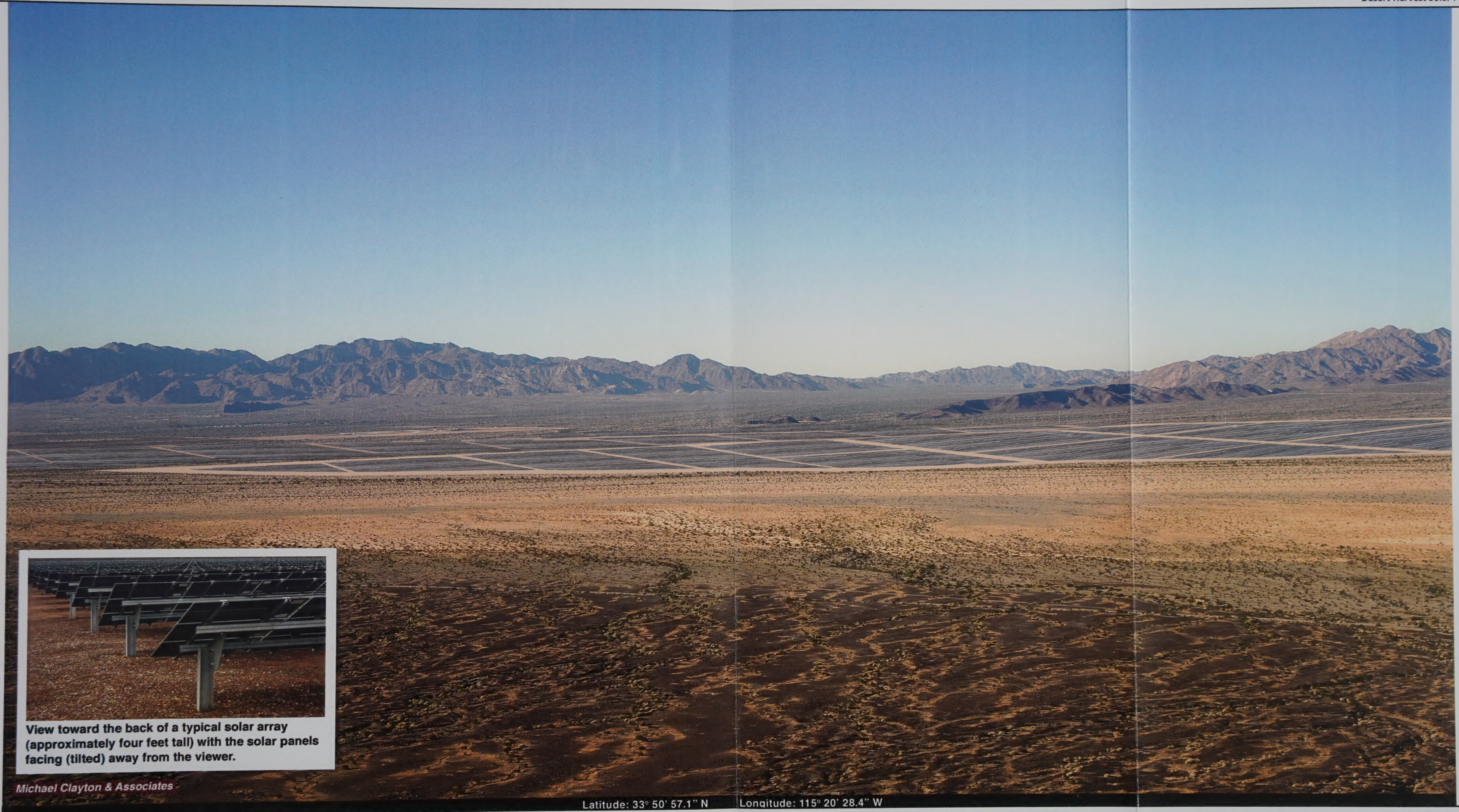
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Proposed project** (approximately 3.5 miles to the southwest) from KOP 2. The proposed solar facility would appear as a spatially prominent and central series of geometric patterns on the basin floor and would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape and background Chuckwalla and Eagle Mountains. The proposed gen-tie transmission line is faintly visible as a sequence of vertical features above the solar development area.

## Figure 4.19-2B

## Key Observation Point 2
## Joshua Tree Wilderness
## Coxcomb Mountains

April 2012



View toward the back of a typical solar array (approximately four feet tall) with the solar panels facing (tilted) away from the viewer.

Michael Clayton & Associates

Latitude: 33° 50' 57.1" N Longitude: 115° 20' 28.4" W

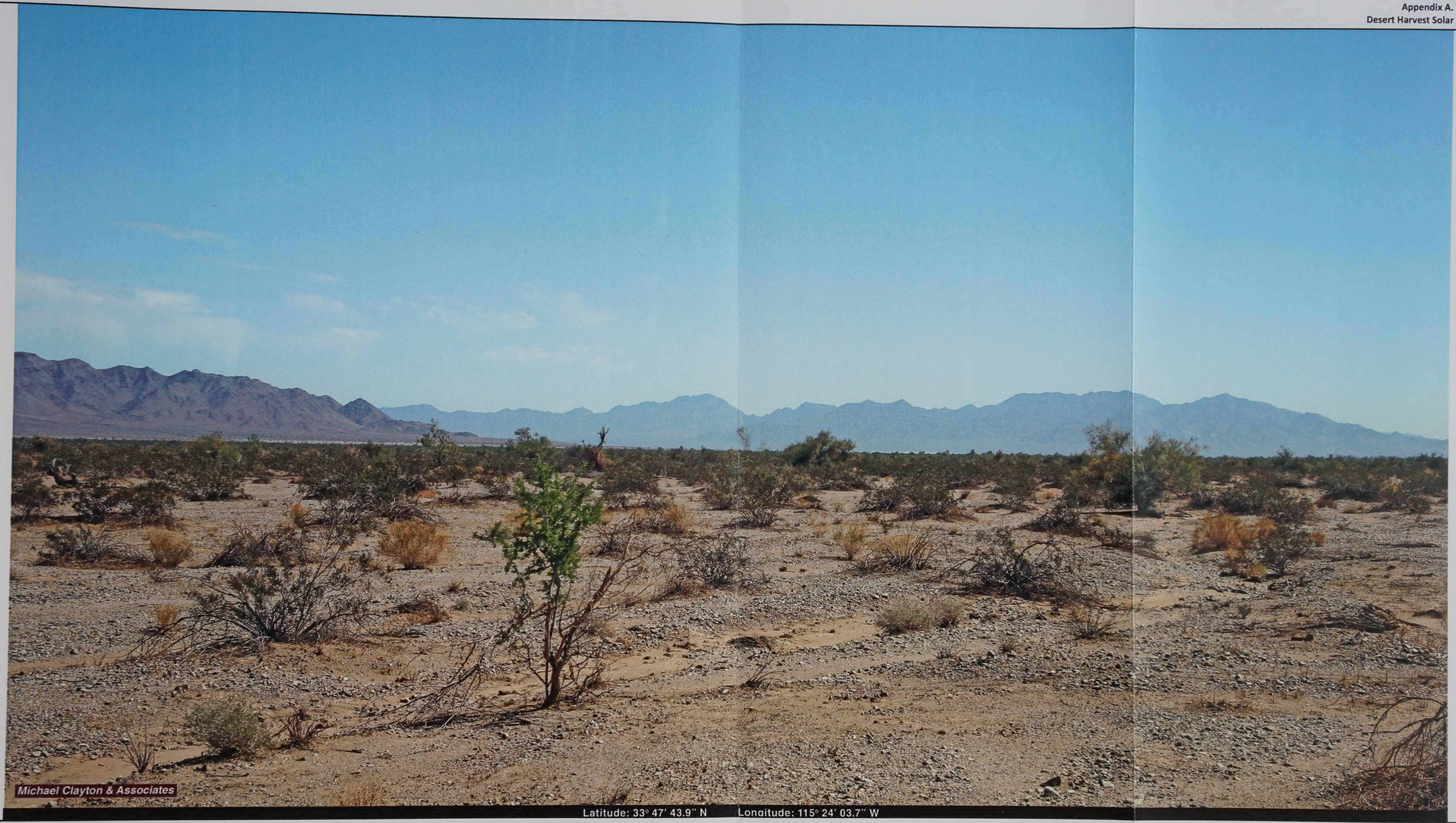
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Cumulative Effect** of the **Proposed project** and **Desert Sunlight project** from KOP 2 (with a viewing distance ranging from 2.5 to 3.5 miles to the southwest). This view is looking toward the back of the solar field with the solar panels facing (tilted) toward the south, away from this viewing location. The proposed solar farm would appear as a spatially prominent series of geometric patterns on the otherwise naturally appearing Chuckwalla Valley basin floor.

**Figure 4.19-2C**

**Key Observation Point 2**
**Joshua Tree Wilderness**
**Coxcomb Mountains**


Michael Clayton & Associates
Latitude: 33° 47' 43.9" N
Longitude: 115° 24' 03.7" W

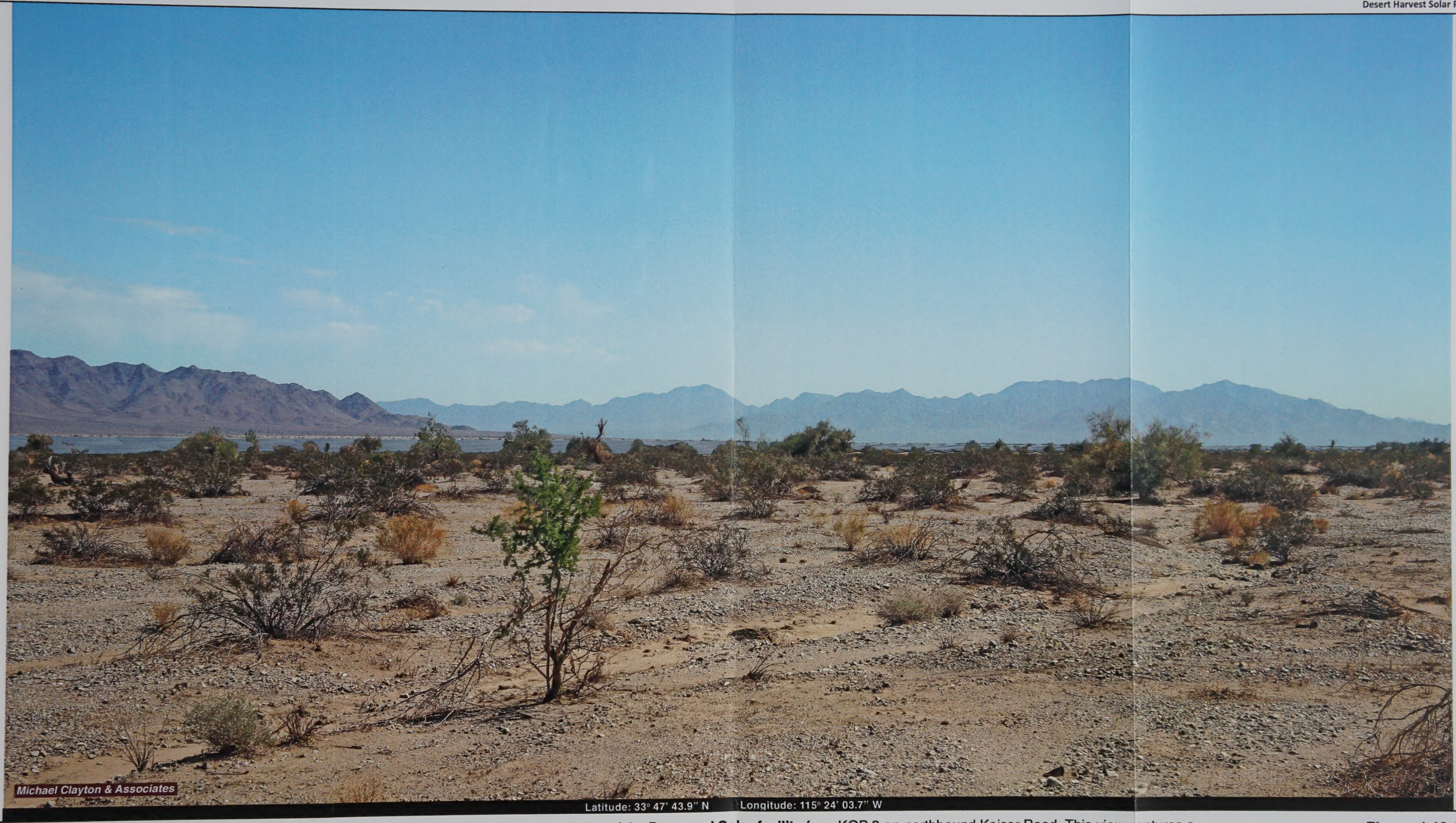
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Proposed project area** from KOP 3 on northbound Kaiser Road, in the immediate vicinity of the proposed solar facility. This viewpoint encompasses the open expanse of a portion of the Chuckwalla Valley, backdropped by the southern extent of the Coxcomb Mountains (center-left of image at a distance of approximately five miles) with the Palen Mountains (center and right) beyond, at a distance of approximately 13 miles.

**Figure 4.19-3A**

**Key Observation Point 3**
**Kaiser Road**
**Project Vicinity**


Michael Clayton & Associates
Latitude: 33° 47' 43.9" N
Longitude: 115° 24' 03.7" W

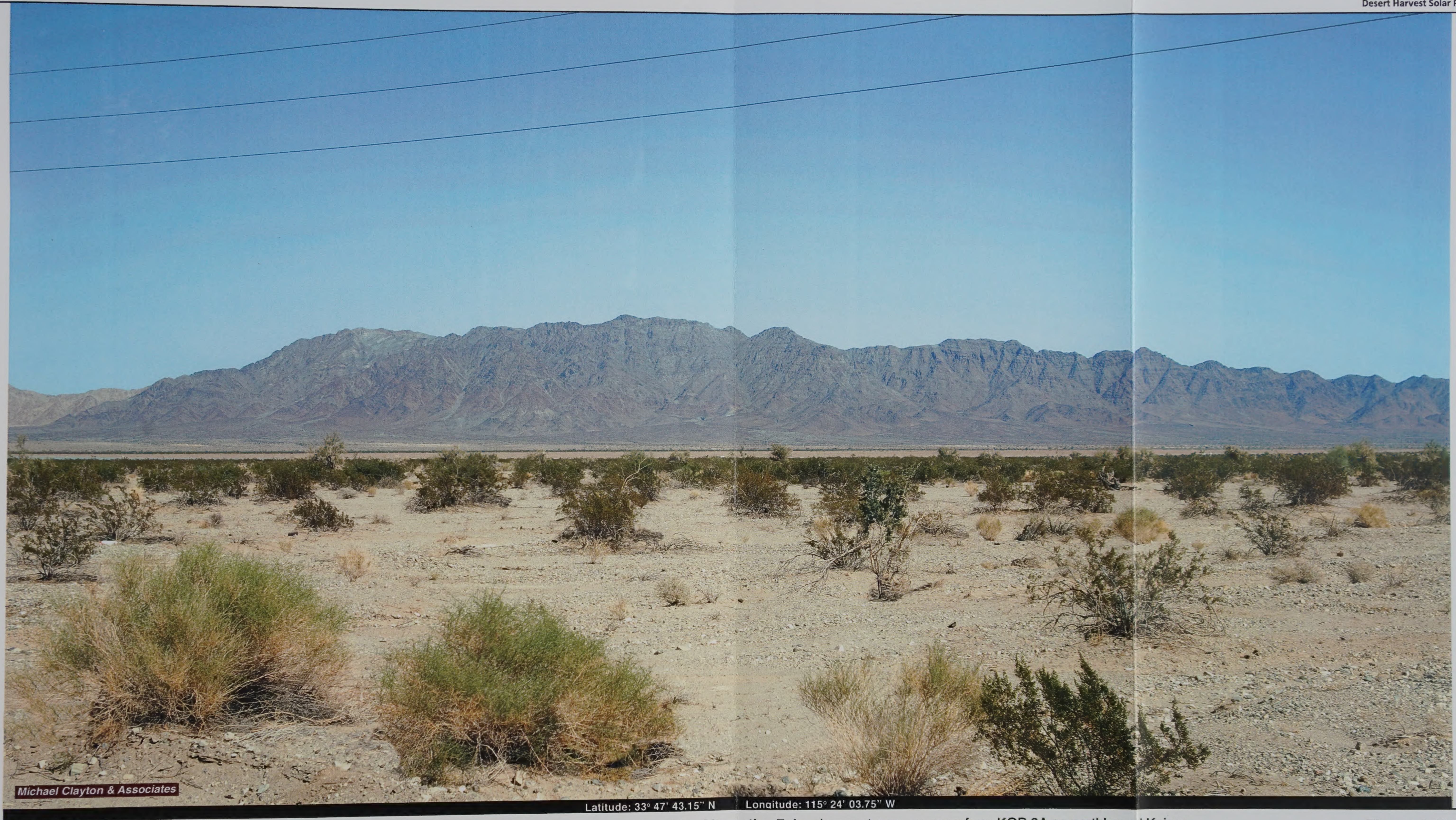
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Proposed Solar facility** from KOP 3 on northbound Kaiser Road. This view captures a portion of the north development area. The viewing distance to the solar arrays ranges from approximately 0.4 mile to approximately 1.4 miles. The solar facility would constitute a substantial landscape feature on the basin floor. However, the low-profile panels would be somewhat screened from view by intervening vegetation (depending on the viewpoint location) as illustrated in the above simulation.

**Figure 4.19-3B**

**Key Observation Point 3**
**Kaiser Road**
**Project Vicinity**

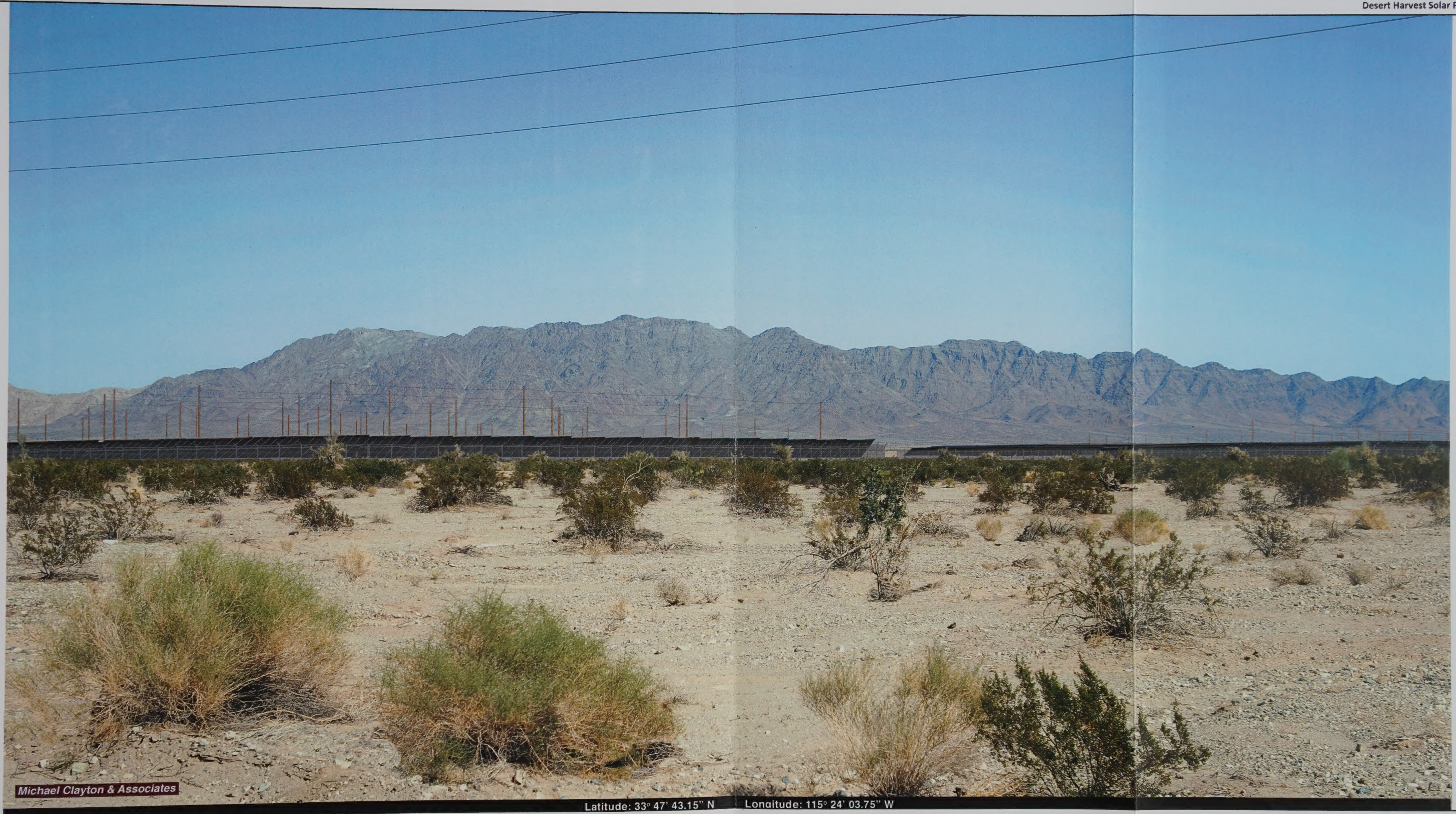

Michael Clayton & Associates
Latitude: 33° 47' 43.15" N
Longitude: 115° 24' 03.75" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of a portion of the **Alternative 7** development area, as seen from KOP 3A on northbound Kaiser Road, in the immediate vicinity of the development area. This view to the northeast encompasses the open expanse of a portion of the Chuckwalla Valley, backdropped by the Coxcomb Mountains (at a distance of approximately five miles) with the Palen Mountains beyond (out of the frame of view to the right), at a distance of approximately 13 miles.

Figure 4.19-3C
Key Observation Point 3A
Kaiser Road
Immediate Project Vicinity


Michael Clayton & Associates
Latitude: 33° 47' 43.15" N
Longitude: 115° 24' 03.75" W

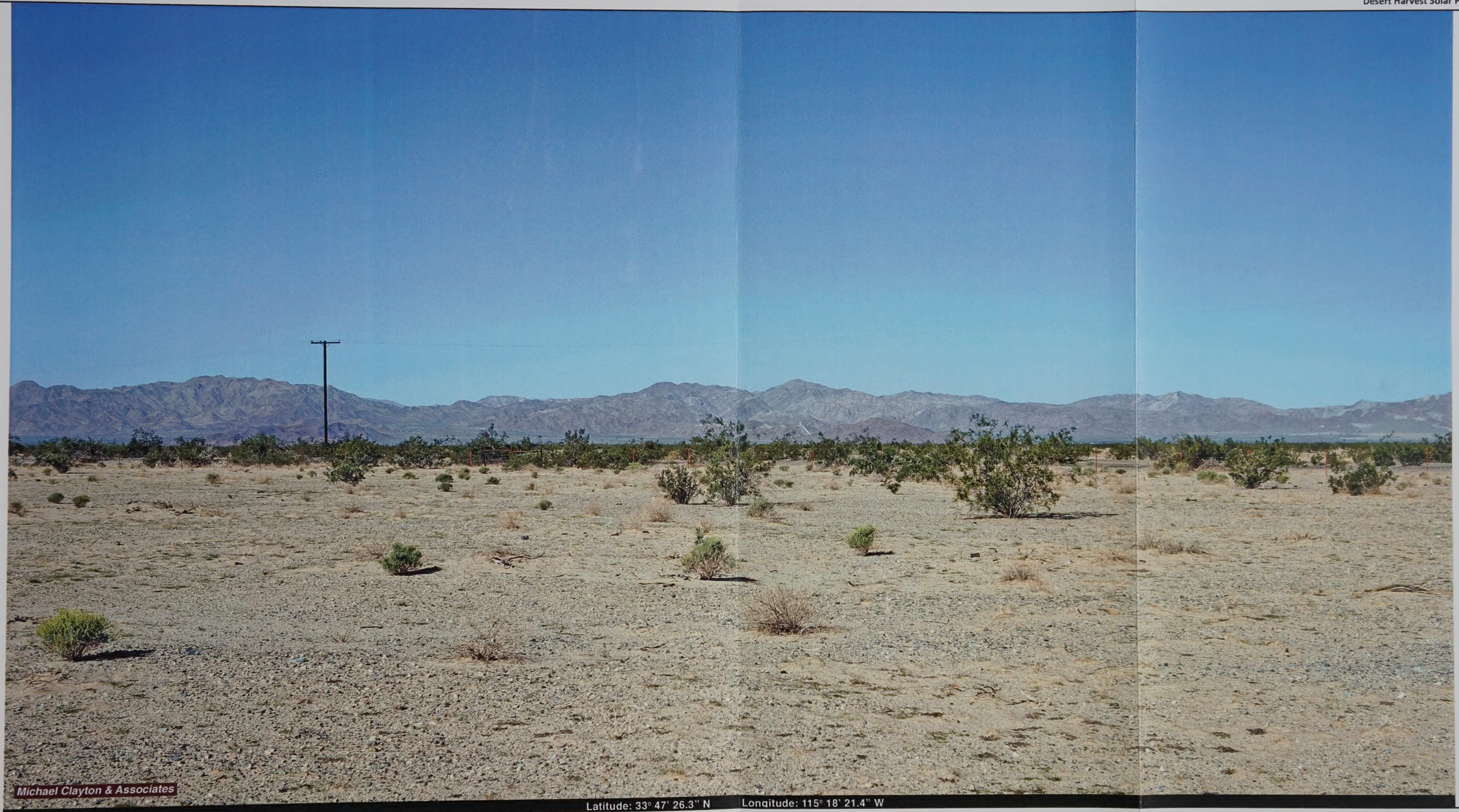
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of **Alternative 7** (high profile, single-axis tracking panels) facing west (left), as viewed from KOP 3A on northbound Kaiser Road, in the immediate project vicinity. The appearance (color) of the solar panels will change depending on time of day, orientation of the tracking panels, and characteristics of the reflected sky. Viewing distance to the solar arrays from this location ranges from approximately 0.25 mile to approximately 0.75 mile. Also visible are numerous collector poles within the solar field.

**Figure 4.19-3D**

**Key Observation Point 3A**
**Kaiser Road**
**Immediate Project Vicinity**


Michael Clayton & Associates
Latitude: 33° 47' 26.3" N
Longitude: 115° 18' 21.4" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

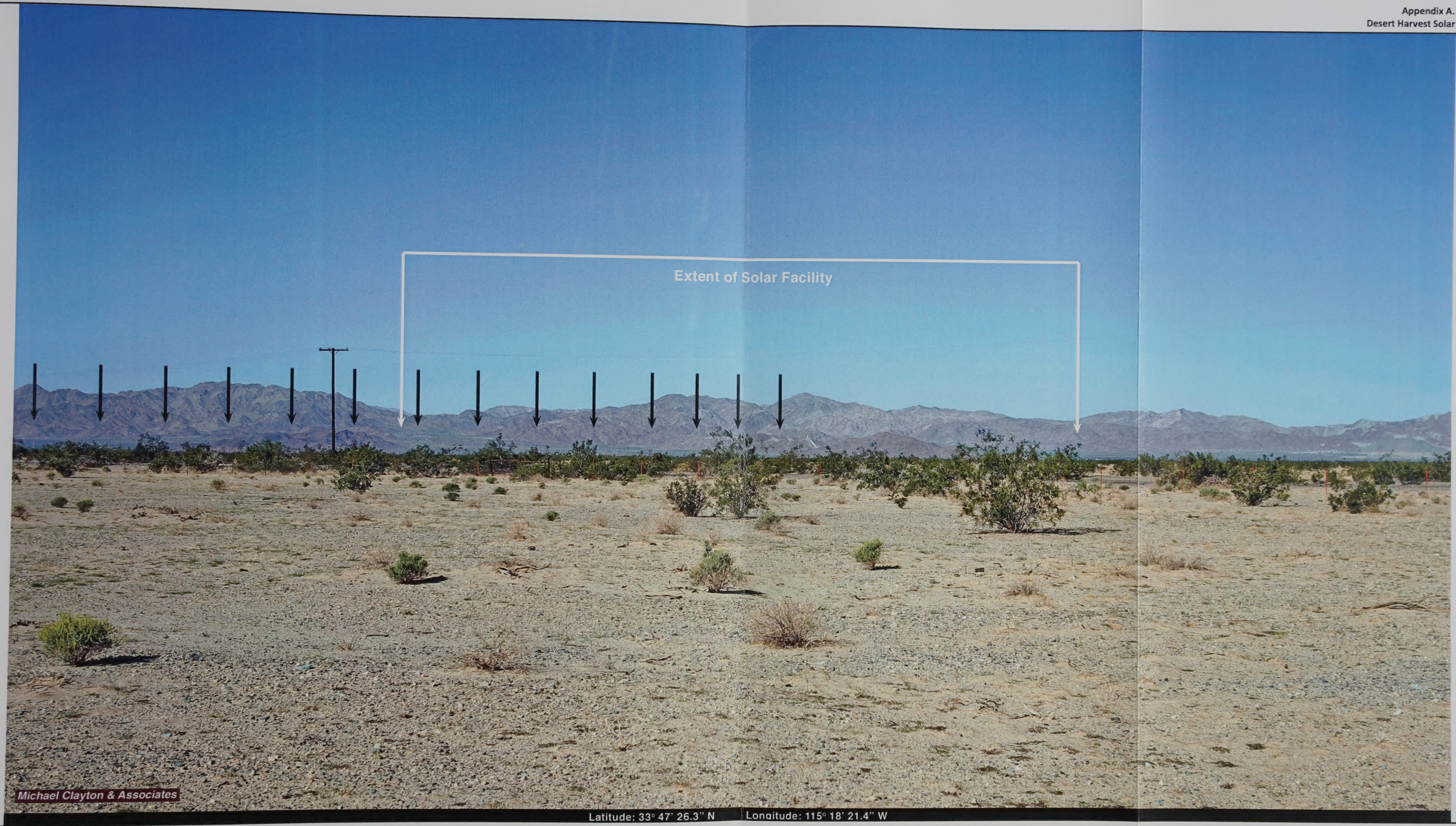
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** toward the **Proposed project area** from KOP 4, near the western perimeter of the Desert Lily Sanctuary ACEC, and just east of SR 177 (the utility pole is adjacent to the roadway). This viewpoint encompasses a portion of the northern Chuckwalla Valley, backdropped by the Eagle Mountains (at a distance of approximately 10 miles). The project site (which would be located in the center of the image, approximately three miles due west) is substantially obscured by intervening vegetation.

**Figure 4.19-4A**

**Key Observation Point 4**
**Desert Lily Sanctuary ACEC**
**Viewing West**

April 2012


Extent of Solar Facility
Michael Clayton & Associates
Latitude: 33° 47' 26.3" N
Longitude: 115° 18' 21.4" W

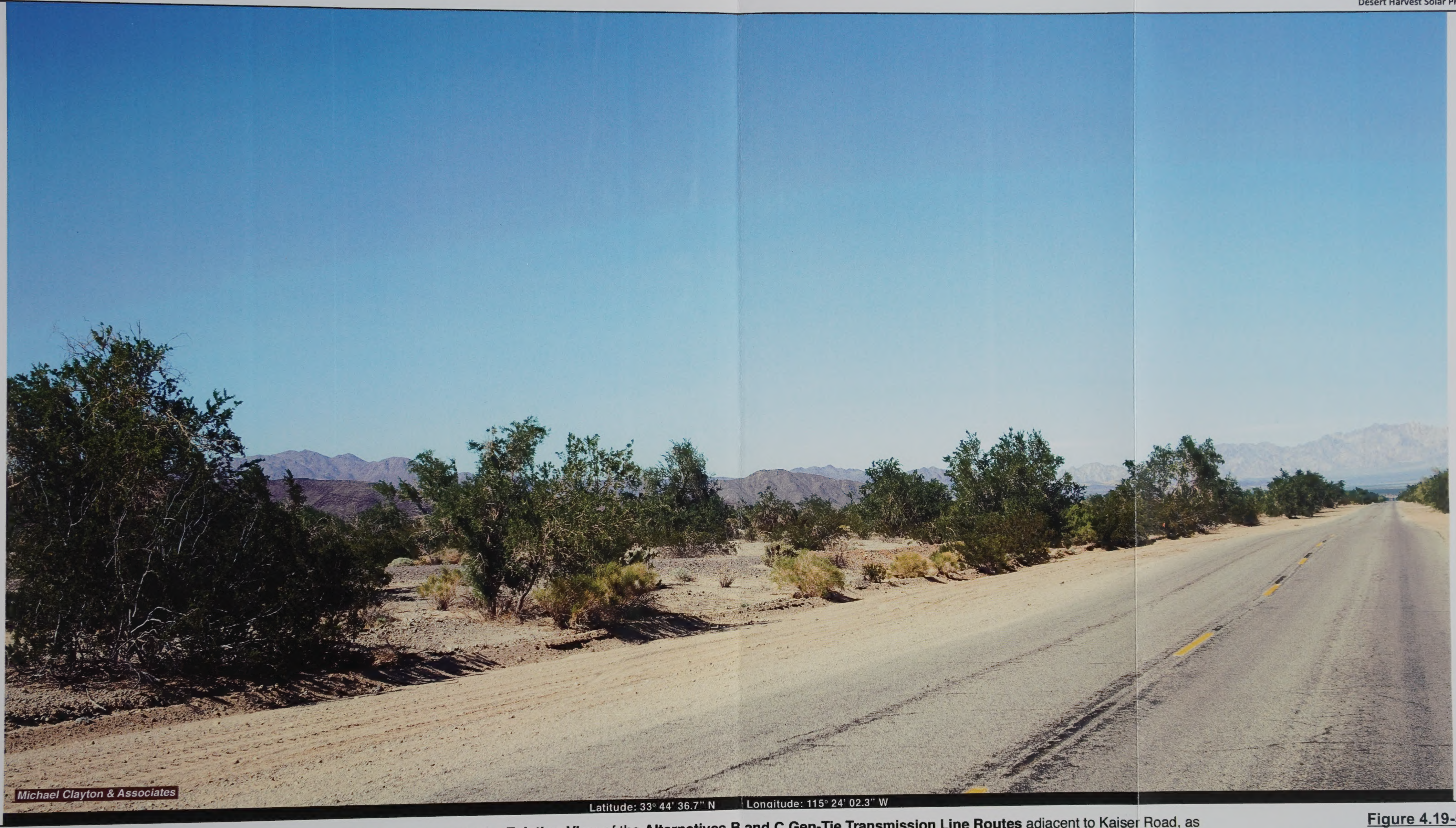
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **proposed gen-tie** line along Kaiser Road (structure locations indicated by black arrows) as viewed from KOP 4 in the Desert Lily Sanctuary ACEC. Only half of the transmission structures in this view would be partially visible above the vegetation. None of the solar facility panels (due to their low vertical profile of less than six feet) would be visible due to vegetative screening. However, at a distance of approximately 5.5 miles, the partially visible structures would be barely discernible.

**Figure 4.19-4B**

**Key Observation Point 4**
**Desert Lily Sanctuary ACEC**
**Viewing West**


Michael Clayton & Associates
Latitude: 33° 44' 36.7" N
Longitude: 115° 24' 02.3" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

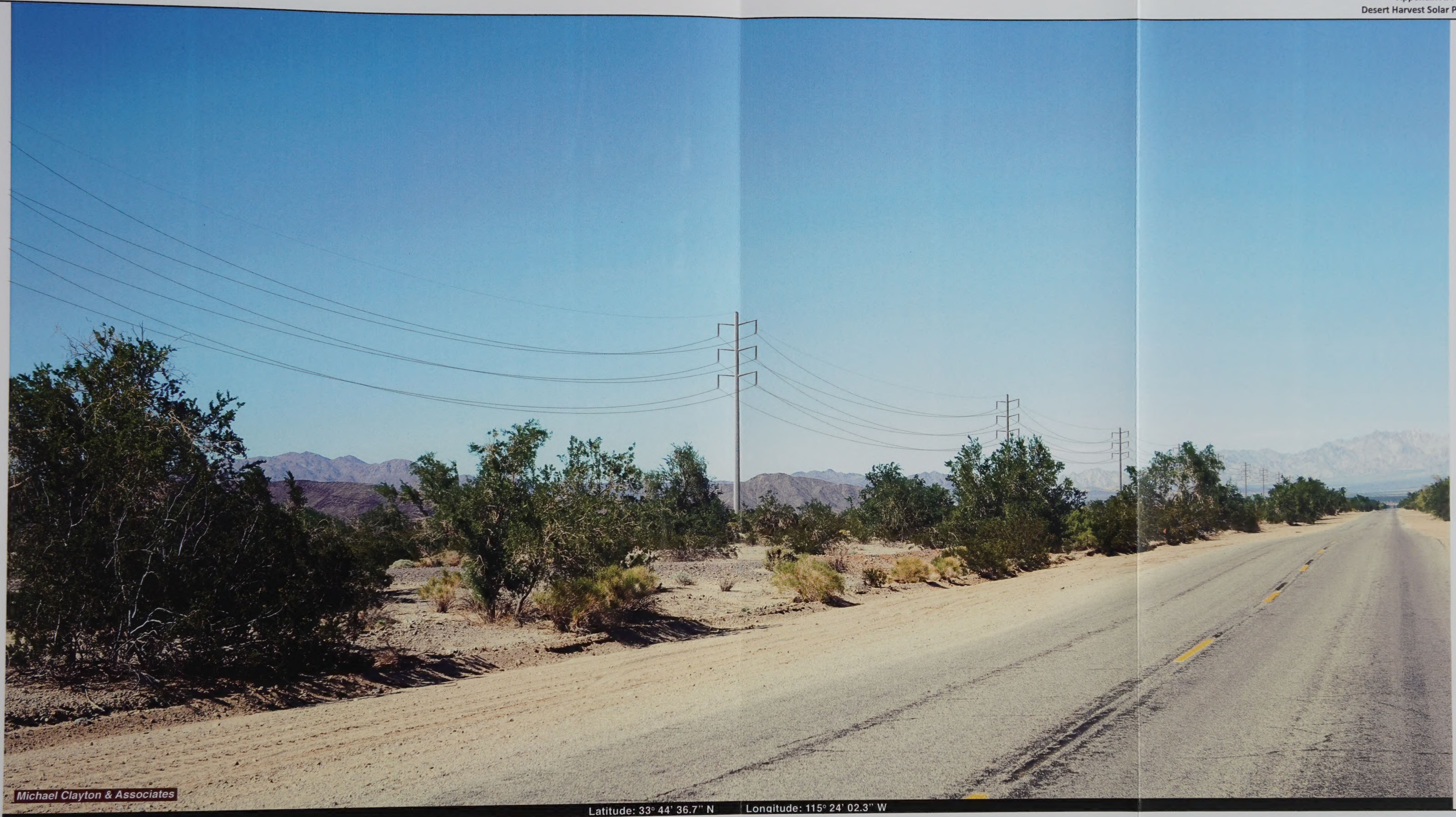
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Alternatives B and C Gen-Tie Transmission Line Routes** adjacent to Kaiser Road, as viewed from KOP 5 on northbound Kaiser Road, in the immediate vicinity the Lake Tamarisk residential development. This view to the north-northwest and the open expanse of Chuckwalla Valley west of Kaiser Road is partially obscured by roadside vegetation. The view is backdropped by the Eagle Mountains. The alternative transmission line routes would parallel the west side Kaiser Road.

**Figure 4.19-5A**

**Key Observation Point 5
Northbound Kaiser Road
Lake Tamarisk**

April 2012


Michael Clayton & Associates
Latitude: 33° 44' 36.7" N
Longitude: 115° 24' 02.3" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

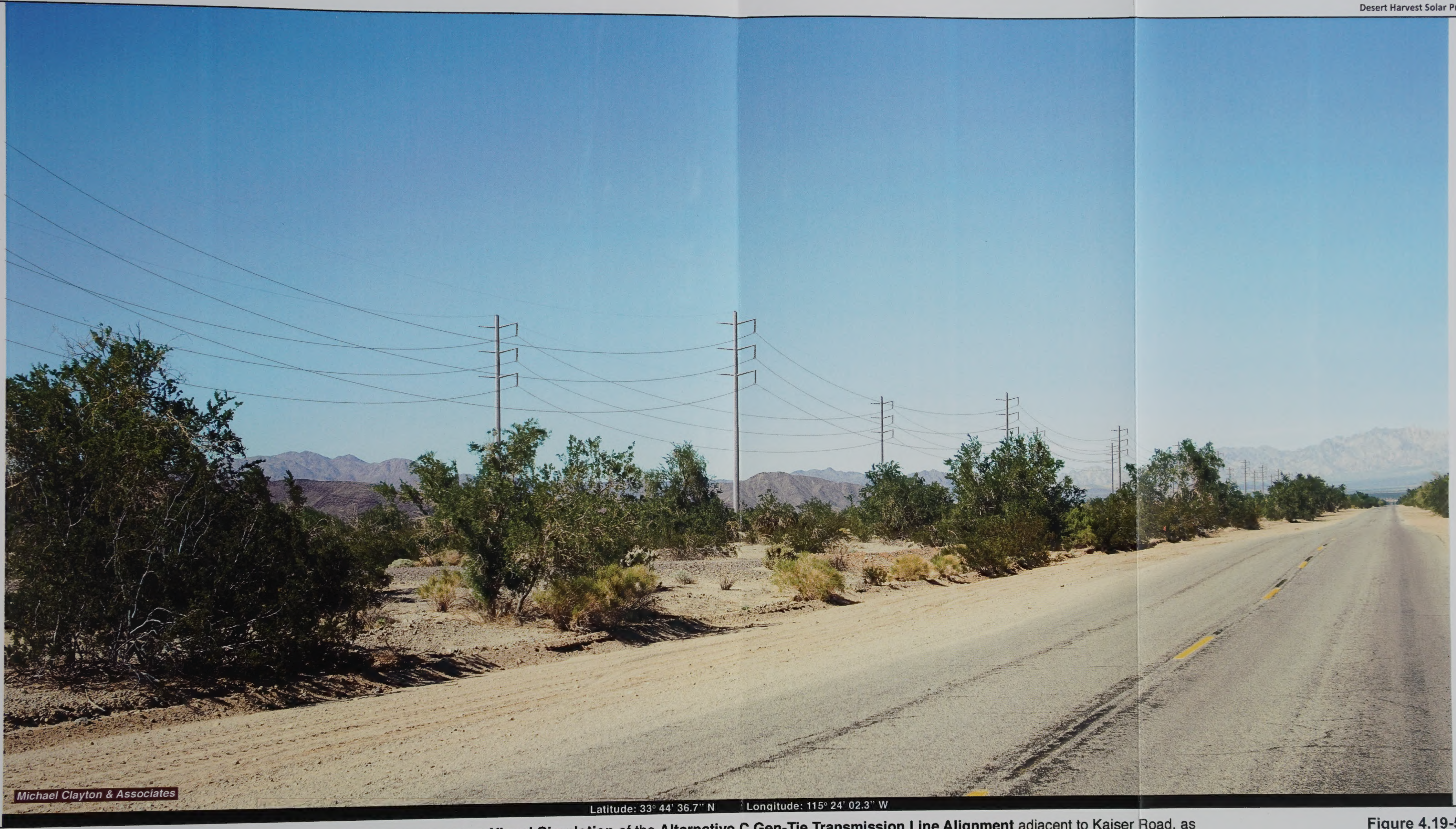
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Alternative B Gen-Tie Transmission Line Alignment** adjacent to Kaiser Road, as viewed from KOP 5 on northbound Kaiser Road. The Desert Harvest transmission line would be the right circuit (right three conductors) on the transmission line structures. It is expected that the First Solar Project would fill the left circuit (left three conductors) on the structures shown above. The transmission line structures would be prominent vertical features in the viewshed west of Kaiser Road.

**Figure 4.19-5B**

**Key Observation Point 5**
**Northbound Kaiser Road**
**Lake Tamarisk**

April 2012


Michael Clayton & Associates
Latitude: 33° 44' 36.7" N
Longitude: 115° 24' 02.3" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

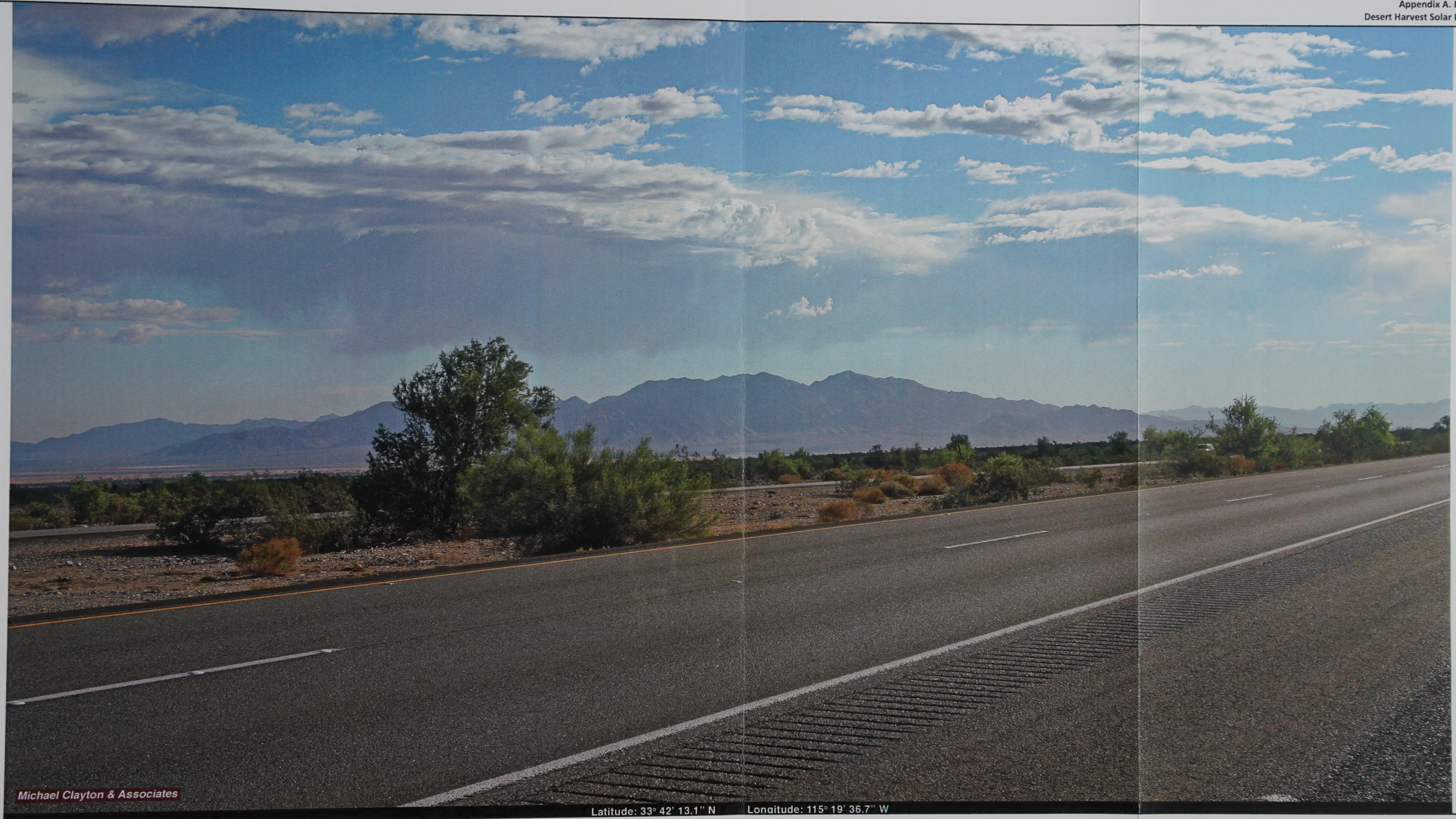
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Alternative C Gen-Tie Transmission Line Alignment** adjacent to Kaiser Road, as viewed from KOP 5 on northbound Kaiser Road. Under this alternative, the Desert Harvest transmission line would be the left (west) transmission line while the First Solar transmission line would be the right (east) transmission line. This alternative would result in a doubling of the structures and a substantial increase in visual contrast and view blockage of the background mountains.

**Figure 4.19-5C**

**Key Observation Point 5**
**Northbound Kaiser Road**
**Lake Tamarisk**

**April 2012**



Michael Clayton & Associates
Latitude: 33° 42' 13.1" N
Longitude: 115° 19' 36.7" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

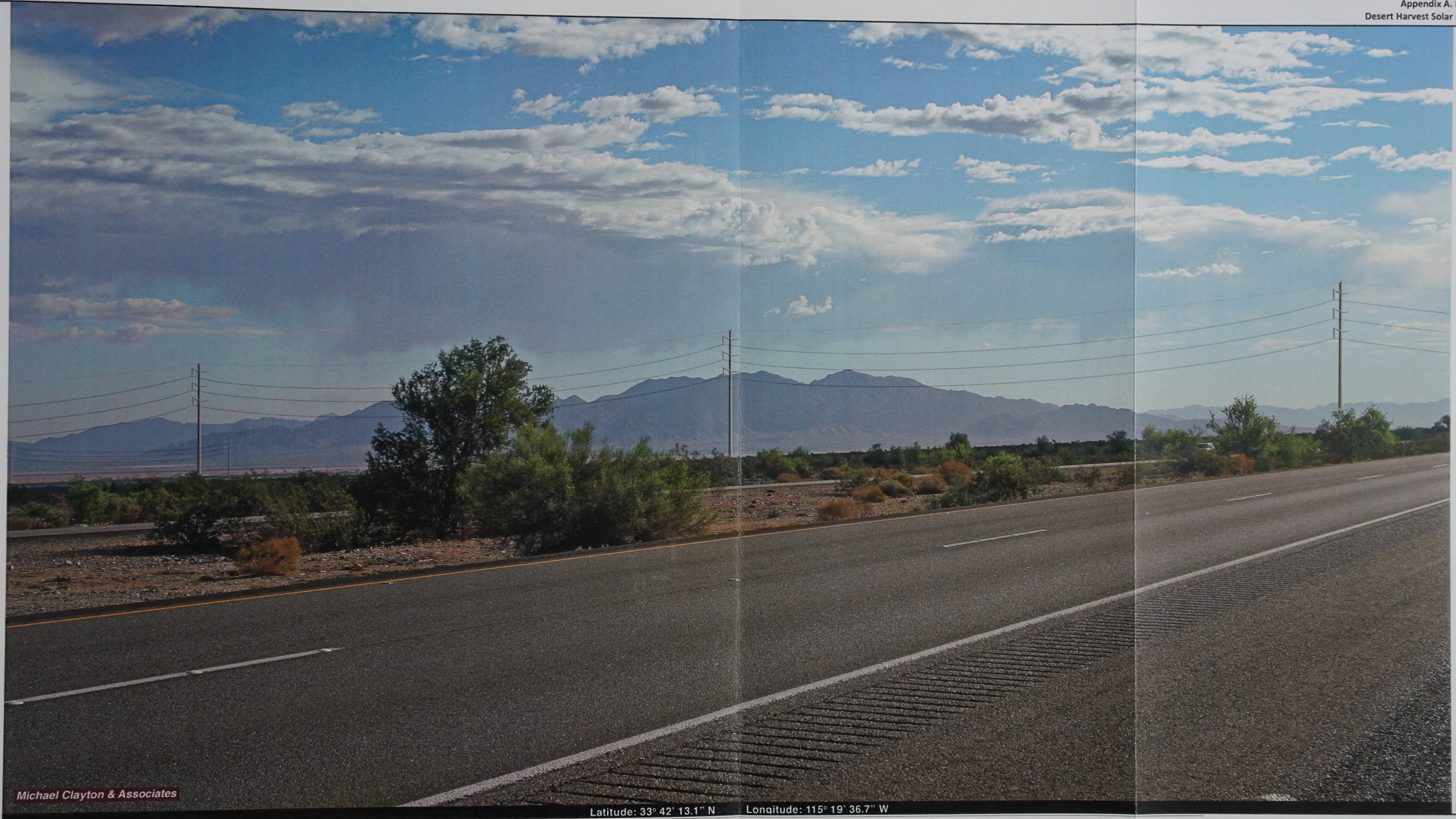
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Gen-Tie Alternative D Transmission Line Route**, as it converges on I-10, as viewed from KOP 6 on eastbound I-10. This viewpoint is approximately 0.8 mile west of the I-10 span. This view to the northeast captures a central portion of the northern Chuckwalla Valley, north of I-10. All of the gen-tie alternatives would converge on and then span I-10 in this area. The view is backdropped by the Palen Mountains at a distance of approximately 10 miles.

**Figure 4.19-6A**

**Key Observation Point 6**
**Eastbound I-10**
**East of Desert Center**

April 2012


Michael Clayton & Associates
Latitude: 33° 42' 13.1" N
Longitude: 115° 19' 36.7" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

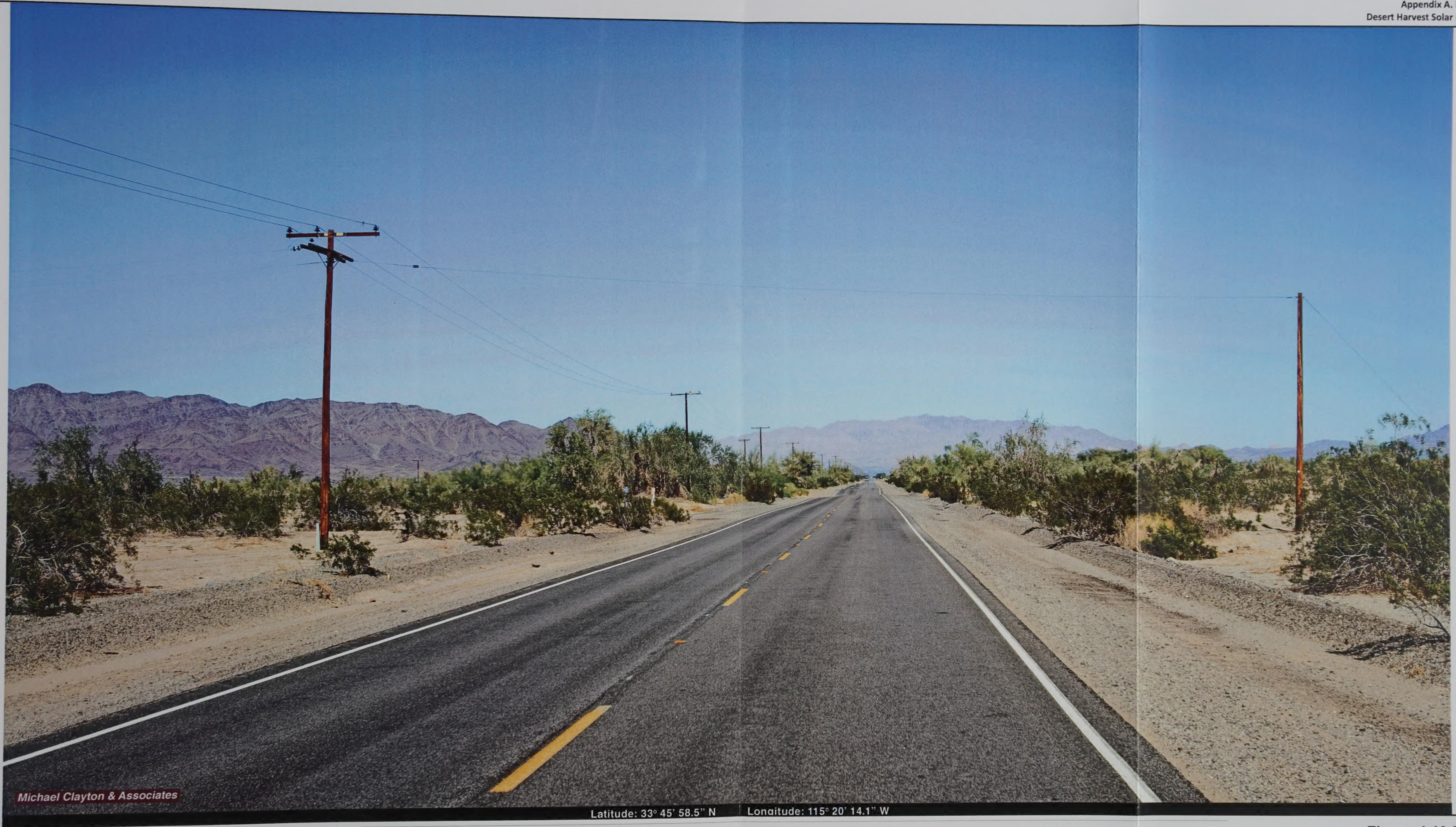
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Gen-Tie Alternative D Transmission Line Route**, as it converges on I-10, as viewed from KOP 6 on eastbound I-10. This viewpoint is approximately 0.3 mile west of the I-10 span. This cross-valley alternative would introduce prominent vertical features into the central portion of the north valley visible from I-10. All of the gen-tie alternatives would converge on and then span I-10 in this area. The view is backdropped by the Palen Mountains at a distance of approximately 10 miles.

**Figure 4.19-6B**

**Key Observation Point 6**
**Eastbound I-10**
**East of Desert Center**

April 2012


Michael Clayton & Associates
Latitude: 33° 45' 58.5" N
Longitude: 115° 20' 14.1" W

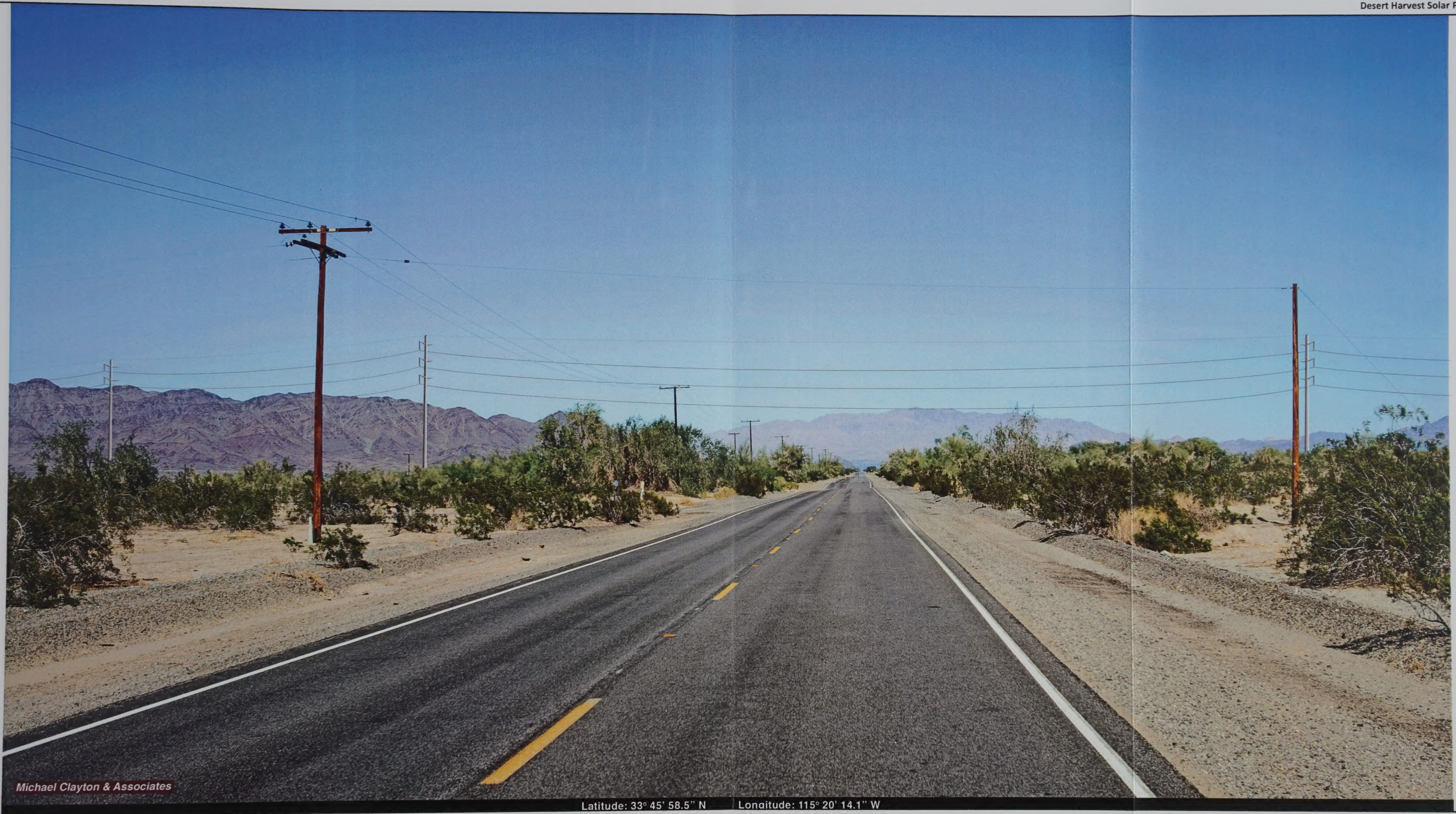
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Gen-Tie Alternative E Transmission Line Route**, in the vicinity of the span of SR 177, as viewed from KOP 7 on northbound SR 177. This viewpoint is approximately 0.3 mile southwest of the span. This view to the northeast captures a central portion of the northern Chuckwalla Valley where it is bisected by Kaiser Road. The view is backdropped by the southeastern extent of the Coxcomb Mountains (center left) and the more distant Palen Mountains (directly ahead).

**Figure 4.19-7A**

**Key Observation Point 7**
**Northbound SR 177**


Michael Clayton & Associates
Latitude: 33° 45' 58.5" N
Longitude: 115° 20' 14.1" W

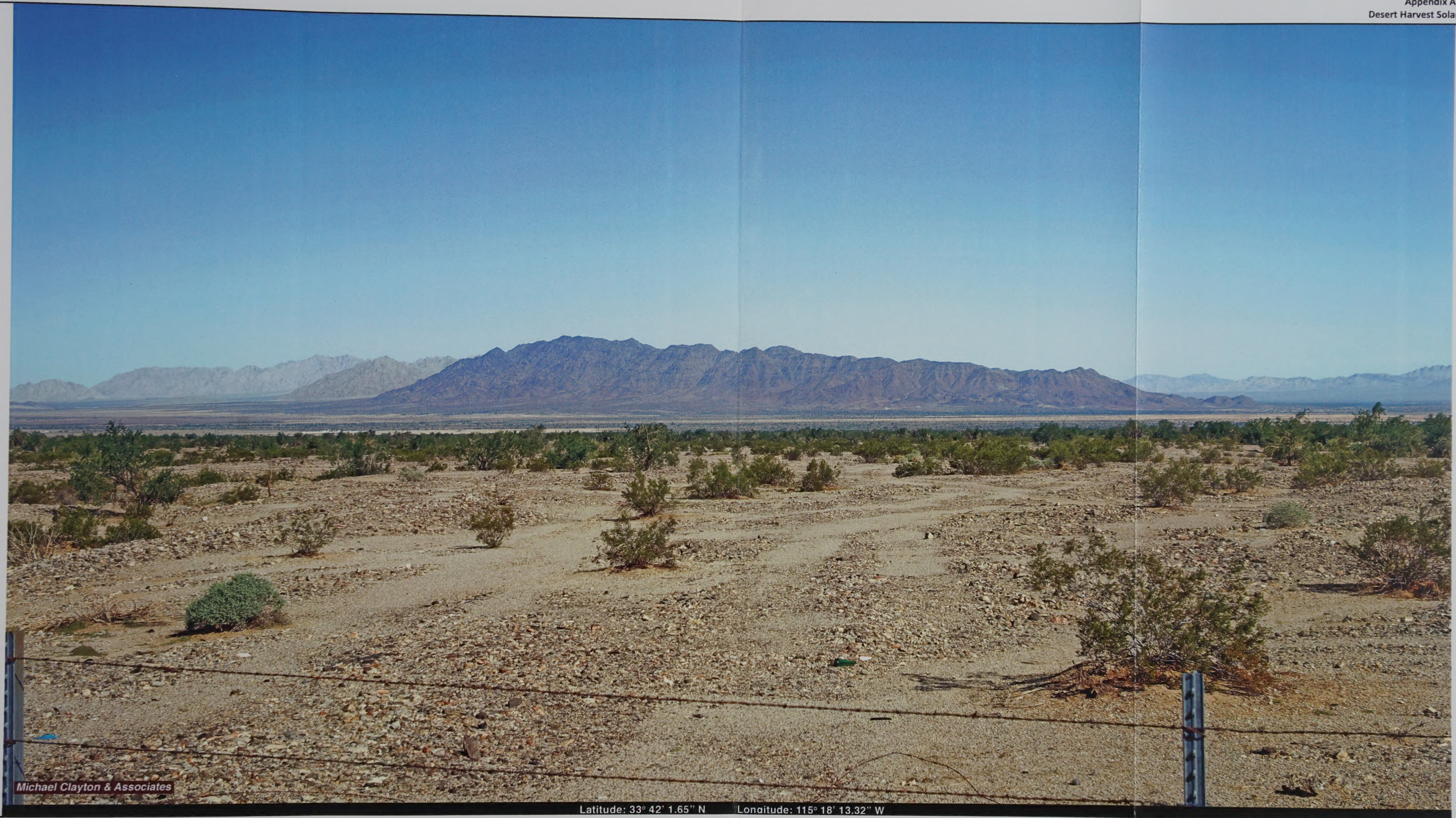
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Gen-Tie Alternative E Transmission Line**, in the vicinity of the span of SR 177, as viewed from KOP 7 on northbound SR 177. This cross-valley alternative would introduce prominent vertical features into the central portion of the north valley, which is presently absent similar landscape features. Although there are wood-pole utility poles and an H-frame transmission line in the vicinity, those wood-brown and rough-hewn features do not appear out of place in the rural landscape.

**Figure 4.19-7B**

**Key Observation Point 7**
**Northbound SR 177**


Michael Clayton & Associates
Latitude: 33° 42' 1.65" N
Longitude: 115° 18' 13.32" W

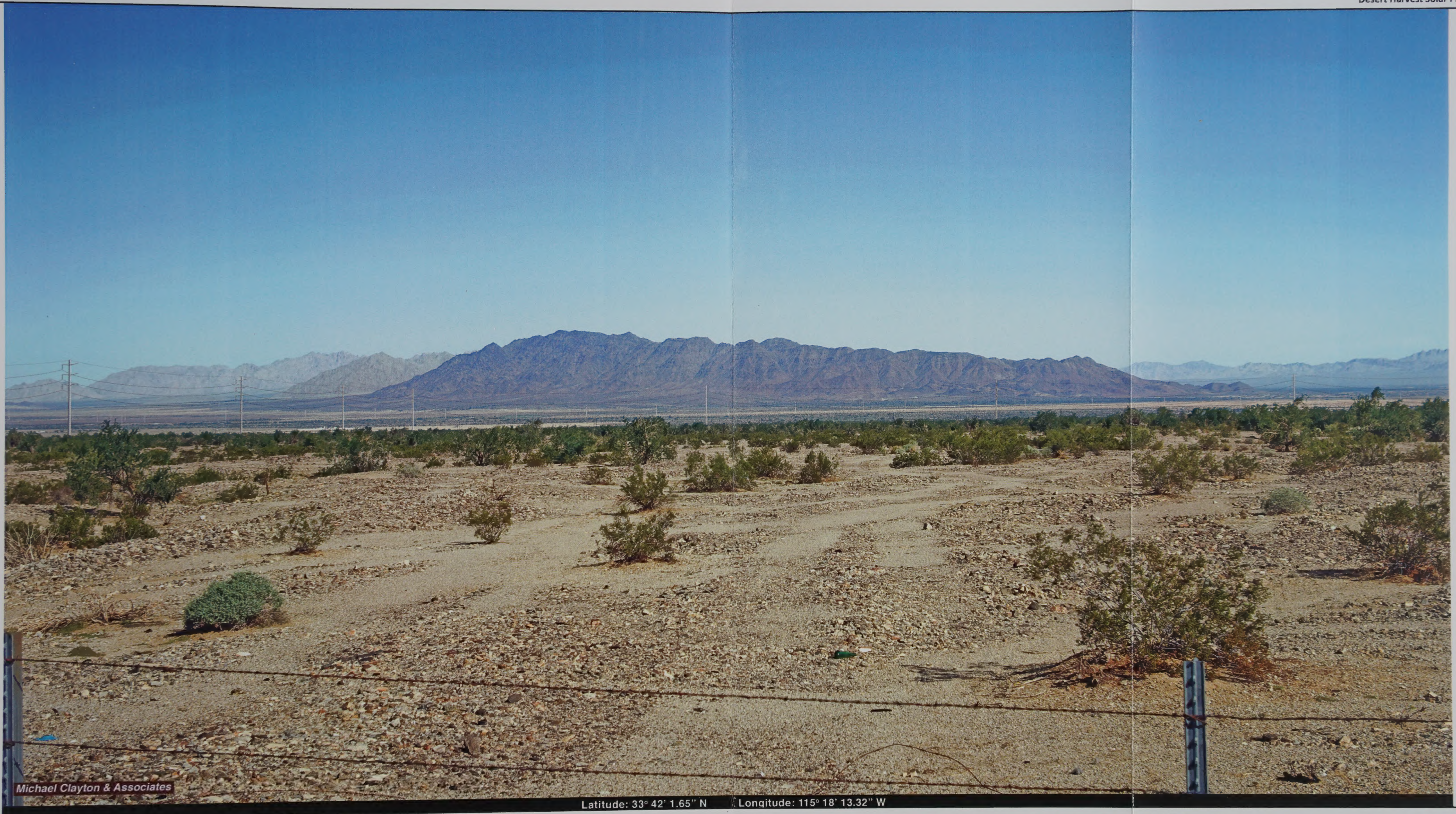
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the **Gen-Tie Alternative E Transmission Line Route**, as it crosses Chuckwalla Valley in a circuitous path before converging on I-10, as viewed from KOP 8 on westbound I-10. This view to the north captures a central portion of the generally natural appearing northern Chuckwalla Valley, north of I-10. All of the gen-tie alternatives would converge on and then span I-10 in this area. The view is backdropped by the Coxcomb Mountains at a distance of approximately eight miles.

**Figure 4.19-8A**

**Key Observation Point 8**
**Westbound I-10**
**East of Desert Center**

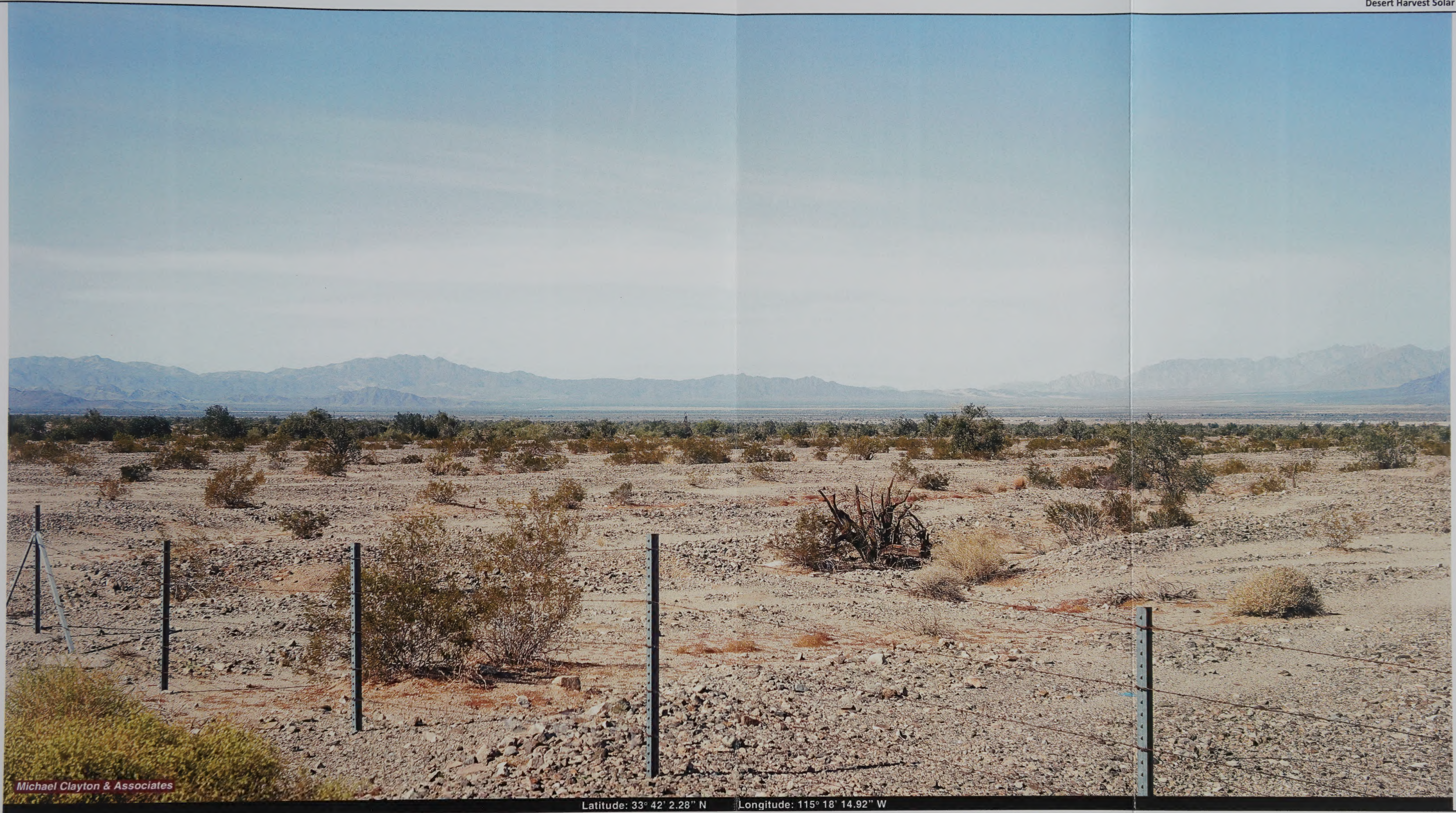

Michael Clayton & Associates
Latitude: 33° 42' 1.65" N
Longitude: 115° 18' 13.32" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District
The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of the **Gen-Tie Alternative E Transmission Line Route**, as it crosses Chuckwalla Valley in a circuitous path before converging on I-10, as viewed from KOP 8 on westbound I-10. Over 30 structures would be visible from I-10 as this alternative winds through Chuckwalla Valley, though, at viewing distances ranging from 0.6 to over five miles, many of the structures would be only faintly visible in the distant middleground. The view is backdropped by the Coxcomb Mountains at a distance of eight miles.

**Figure 4.19-8B**

**Key Observation Point 8**
**Westbound I-10**
**East of Desert Center**


Michael Clayton & Associates
Latitude: 33° 42' 2.28" N
Longitude: 115° 18' 14.92" W

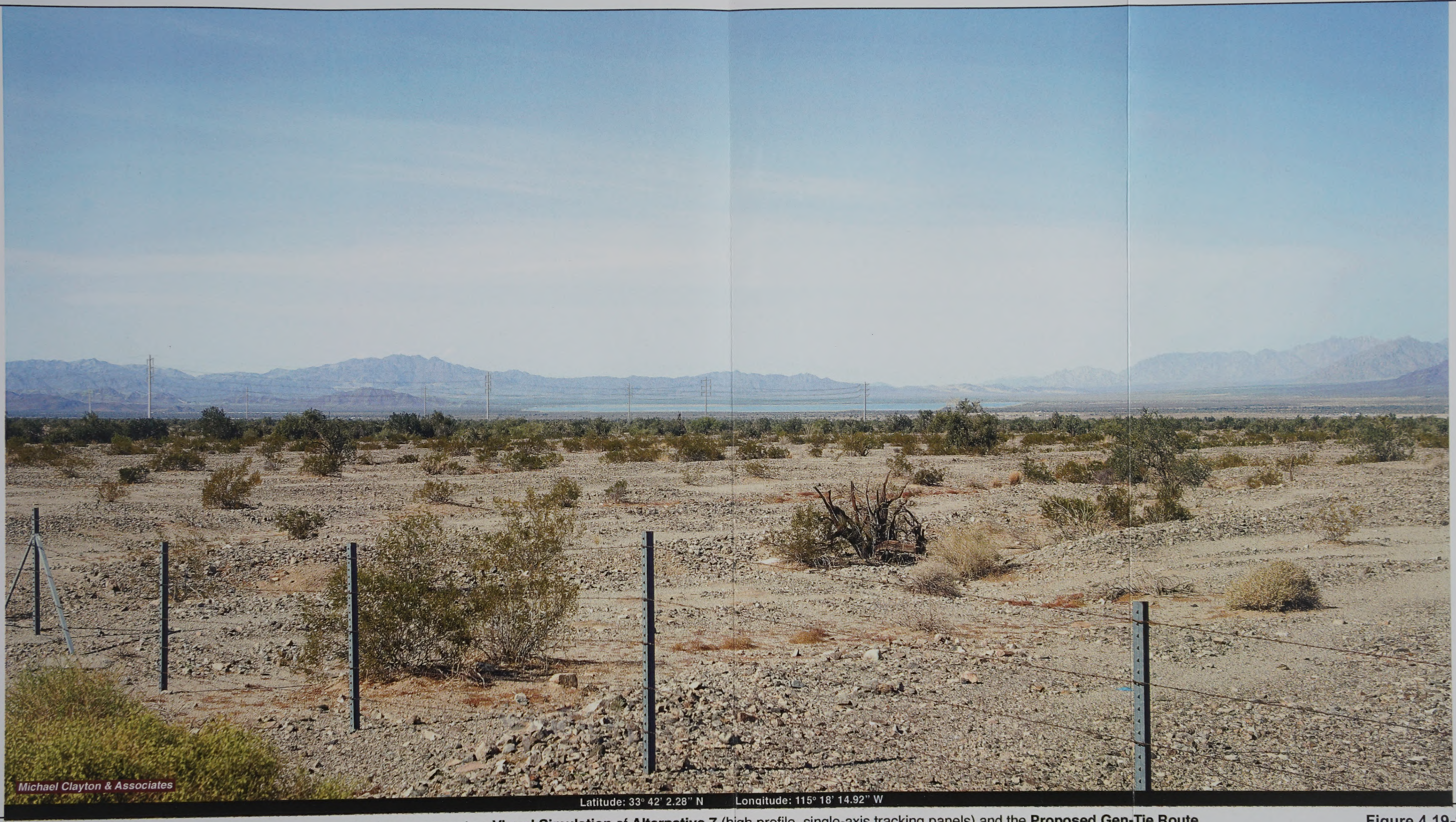
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents the **Existing View** of the central and northern portions of Chuckwalla Valley in the vicinity of the **Proposed Solar Field** and the **Proposed Gen-Tie Route**, as viewed from KOP 8A on westbound I-10. As is apparent from this image, this portion of the Chuckwalla Valley north of I-10 is predominantly natural in appearance. From this viewpoint, the valley floor is backdropped by the Eagle and Coxcomb Mountains and is surrounded on three sides by Joshua Tree Wilderness.

**Figure 4.19-8C**

**Key Observation Point 8A**
**Westbound I-10**
**East of Desert Center**


Michael Clayton & Associates
Latitude: 33° 42' 2.28" N
Longitude: 115° 18' 14.92" W

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
California Desert District

The Bureau of Land Management make no warranties,implied or expressed, with respect to information shown on this map.

This image presents a **Visual Simulation** of **Alternative 7** (high profile, single-axis tracking panels) and the **Proposed Gen-Tie Route**, as viewed from KOP 8A on westbound I-10. At this viewing distance of approximately 6.75 miles, the solar field would be a noticeable, linear horizontal feature along the Chuckwalla Valley floor. The solar field is shown here as reflecting the bluish hues of the sky. The appearance of the solar panels will change depending on time of day, orientation of the tracking panels, and characteristics of the reflected sky.

**Figure 4.19-8D**

**Key Observation Point 8A**
**Westbound I-10**
**East of Desert Center**

April 2012